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STEEL

The Magazine of Metalworking and Metalproducing

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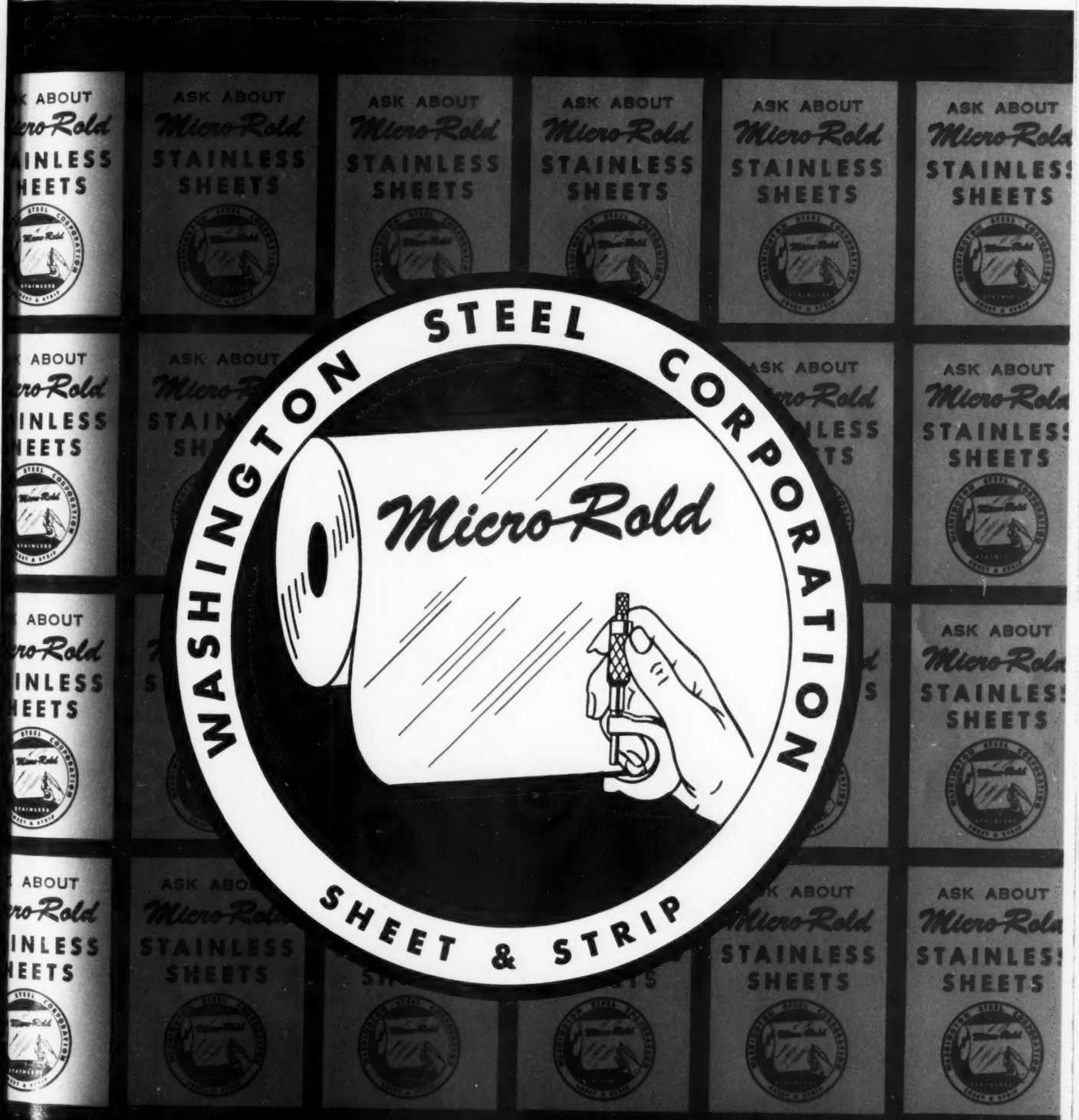

Washington Steel Corporation Washington, Pa.

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Built to Cut Maintenance

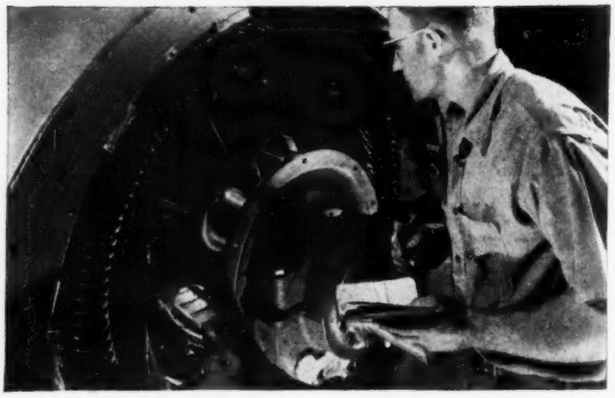
EASIER MAINTENANCE PROCEDURES and lower maintenance costs are important features of this brand new line of large motors. One man can perform all routine maintenance procedures, including opening up the motor for cleaning. Bearing surfaces are not exposed to abrasive grit and dirt during cleaning operations.

The appearance of this new line of large motors reflects the advanced design and fine workmanship that goes into their manufacture.

A well-braced, sturdy fabricated steel frame with cast-iron end brackets rigidly support and protect working parts. Ventilating openings are large to provide adequate cooling air at low velocities with resultant low sound level.

Wide Range of Sizes

These new design Allis-Chalmers drip-proof and splash-proof squirrel-cage induction motors are built in sizes from 60 hp at 300 rpm to 1500 hp at 1800 rpm. Ask your Allis-Chalmers representative to show you the details of this exceptional new motor or write for Bulletin 05R7542.



How's This for Accessibility

One man can remove the end brackets and air baffles and reach right inside motor with his vacuum cleaner or air hose. Bearing remains sealed against abrasive dirt throughout the cleaning operation.

Large air discharge openings with removable louvers allow plenty of room to get in with an electric drill for doweling and bolting the motor to the base. Plenty of room to reach up back of the stator core for cleaning.

A-3179

ALLIS-CHALMERS, 1021A SO. 70 ST.
MILWAUKEE, WIS.

ALLIS-CHALMERS

Hot Water

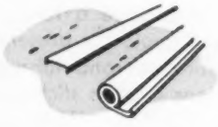
"Now our dealers want a feather-light, collapsible baby buggy,"

said the head of Tiny-Tot Transportation Co. "It's a cinch with magnesium," said his chief designer. "Magnesium frame . . . magnesium wheels . . . magnesium handle." "But we've never handled magnesium in our shop, we might get in hot water,"

said the boss. To settle the argument, they came to light-metal headquarters . . . Aluminum Company of America.

They found that handling magnesium is easy. (Industry, used about 37 million pounds of magnesium last year.) They got technical help, plus books

on fabricating and designing magnesium. Now Tiny-Tot Buggies are made of magnesium products



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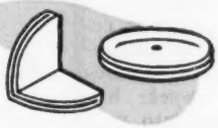

costs are way down. Dealers are pushing the new lightweight buggy way ahead of competition.

These two free books on magnesium and our broad technical experience can help your products, too. Write Aluminum Company of America, 2107K Gulf Building, Pittsburgh 19, Pa. Sales offices in principal cities.

ALCOA ALUMINUM and MAGNESIUM

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STAINLESS STEEL SURFACE FINISHING

Attractiveness and usefulness of stainless steel depends a great deal upon the surface finish. The user of stainless should first select the strip steel with a finish that comes closest to what he wants on his finished product. Then by grinding, polishing, buffing and/or electropolishing he can bring the brightness of his product to the exact degree he desires.

Because of the nature of stainless steel, some precaution is necessary. For example, the thermal conductivity of all stainless steel is low and the frictional qualities, high. Overheating and scorching is likely to occur, impairing the corrosion resistance, if some care is not exercised. Because of the high coefficient of expansion some buckling and distortion will occur if the work is allowed to become overheated. However, these things are easily corrected if the fabricator properly processes the work.

When employing mechanical methods (grinding, polishing and buffing) to acquire a finish it is essential to avoid the presence of iron in abrasives and lubricating compositions such as stick grease, tallow and rouge. Many manufacturers produce abrasives and lubricants of the desired purity. Frequent dressing of wheels will keep them from "loading up" and producing objectionable scratches. It is important to apply successive abrasives in the proper sequence to avoid undue scratching. Lubricated abrasives are usually preferred over dry abrasives of the same grit number because they produce a softer, finer finish.

Finishing Welds: work with weld, not across it . . . do not allow work to become overheated . . . rubber wheels are preferred because they have less tendency to "load-up" . . . speeds of about 5000-6000 linear feet per minute is good for rough grinding . . . when matching mill finish cut with fine grit in the direction of the original polishing lines.

(This is the seventh of a series of reports on stainless steels that appear monthly in this column through the courtesy of the Sharon Steel Corporation.)

Behind the Scenes . . .

Putting Godfrey Straight

STEEL, or rather STEEL's business manager, Jim Zuber, has made the Arthur Godfrey hour. Godfrey in his morning program recently raised the question of what is the biggest industry in the country. Jim's telegram read by Godfrey over the air says:

"Metalworking (all makers of metal and users of metal to manufacture products) is by far the country's largest industry. Metalworking in 1950 will do $80 billion worth of business. It employs close to 6 million people. Textiles is second by employment. Food is second by materials purchased."

STEEL is the magazine of metalworking, the country's and the world's largest industry.

Wanta Buy a Duck?

A flock of ducks, probably attracted by the lights, came waddling into Sharon Steel Corp's eight-inch mill about dusk one night. There were so many of them that the mill had to be stopped. Every man had a duck or two in his dinner pail or under his arm going home next morning.

But, alas, two days later the owner of the ducks came in and demanded pay for them. You couldn't get something for nothing even way back in April of 1902 when that incident occurred. The event is related in *Sharon-steel Record's* special issue commemorating the company's 50-year history. Any ducks wandered into your plant recently?

On Books and Men

Some 600 books are published in the U. S. each year that have to do with economic or technical phases of metalworking. Nearly all are reviewed in STEEL. Assistant Editor Hank Holtz reviews most of them, but other editors write the summaries when a volume deals with their specialties.

Brookings Institution is a prolific publisher of volumes on economic aspects of metalworking. University presses contribute a great many, too. Harvard recently published a beautiful typographical job on old French ironwork.

The editors pass up most of the books in German and French, of which there are many, but occasionally they tackle even them. They have reviewed some of Herbert Gross's books on labor-management problems in Germany. Gross is STEEL's correspondent for Western Germany.

Break the Law

Washington is the only place on earth where sound travels faster than light, says L. D. McDonald, executive vice president of Warner & Swasey Co., Cleveland.

Signs of the Times

Westinghouse Electric Corp's Elevator Division has just received concrete proof of the troubling, perplexing era we live in. It was awarded a contract to install a two-ton freight elevator in Durham, N. C., for B. C. Remedy Co., producer of headache powders and tablets.

Estey Organ Corp., Brattleboro, Vt., which built organs for your great-great grandma, has just booked an order for 300 folding instruments with cases. They are for Army chaplains. Considering the present state of world morale and morals, we recommend that Estey gets a DO rating from the Department of Defense.

Puzzle Corner

First in with the answer to the anti-freeze problem of Oct. 16 were John Henke of Gust. Krack Co., A. M. Woodall of Ingalls Iron Works Co., M. S. Bailey of Machine Products Corp. and O. A. Davis of Davis Engineering Co. You would have to take 1 1/7 gallons out of the radiator.

So over-run was a factory with mice that the president asked his employees with cats to donate them. After a time it was found that every cat had killed an equal number of mice and that the mice killed totalled 1,111,111. The mice exceeded the cats. How many cats were there?

Shrdlu

(Editorial Index—page 19)

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October 30, 1950

Balance Is an Asset

Many of the tens of thousands of persons who attended the annual National Metal Congress & Exposition in Chicago last week must have returned to their jobs with renewed confidence in the mighty potential of the American metalworking industries. Throughout the technical sessions and other meetings of the American Society for Metals and of other participating societies and in the varied exhibits at the show was abundant evidence not only of the ability of these industries to produce goods of high quality in great volume but also of a fine balance between the various segments of these industries.

This quality of balance seldom is appreciated fully by those who attempt to appraise the assets of the American economy. We are prone to emphasize productive capacity and to underrate the important fact that to have a strong industrial structure we must have a fine degree of balance between its component parts. Fortunately we have that balance to a greater extent than does the industrial structure of any other nation.

The programs and show at Chicago last week reflected the progress of the American metalworking industries comprising more than 50,000 plants and employing about 6 million persons. These plants range in size from the corporate giants to the smallest shops. They are engaged in producing primary metals, fabricating metals, building machinery, manufacturing transportation equipment and manufacturing instruments and related products.

By virtue of our private enterprise system and under the spur of competition these metalworking companies seek a favorable position in the complex industrial structure. The corporate giants undertake the work in which bigness and substantial resources are advantageous. The medium and smaller establishments undertake work in which specialization in technology, design or service is advantageous. The result is an industrial structure in which every possible opportunity for profitable activity is pursued energetically. In short, we have good balance.

Not every industrial nation can boast of comparable balance. In Russia some segments of the metalworking industries are far more developed than others. In Britain and on the continent nationalization or regimentation is tending to throw industries out of balance.

In the challenge which lies ahead, our balance in industrial activity may prove to be one of our most valuable assets.

* * *

CHEAP BY COMPARISON: In an address at the annual meeting of the California Manufacturers' Association, Benjamin F. Fairless, president of United States Steel Corp., made interesting comparisons of steel prices with those of other commodities.

Mr. Fairless stated that the average price of all finished steel sold by United States Steel this year has been just under 5 cents a pound and that some finished products are selling at less than 3½ cents. "What else in the world can you buy today for 3½ cents a pound?" he asked. "Eggs, butter and meat? No! They cost from 20 to 30 times as much as steel. There is literally nothing in our grocery stores that you can buy for as little as 3½ cents a pound —not even the commonest garden vegetables, nor flour, nor sugar, nor potatoes, nor anything else on the shelves."

"Steel undersells every other metal in the world. It is cheaper than the cheapest material from which clothing is made. It is cheaper than the lumber that goes into your home. It is even cheaper than the common pulp upon which your daily newspaper is printed."

Mr. Fairless added that whereas the govern-

(OVER)

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ment has no thought of abandoning its price support on cotton selling above 40 cents a pound, Senator O'Mahoney last December denounced an increase of two-tenths of a cent a pound for steel as a national scandal. "Isn't it time," asked Mr. Fairless, "that we develop a realistic perspective about prices and stop making steel a political football?" —p. 32

* * *

INDUSTRY CONFIDENT: Last week witnessed an unusual number of conventions of interest to persons identified with metalworking. In practically every meeting considerable attention was devoted to the business outlook, with special emphasis upon how the preparedness program will affect the present routine of industrial activity.

Discussion of this subject brought forth little information or even speculation as to the effects of heightened defense activity upon any specific sector of industry. There seemed to be general agreement that approach of the end of the Korean war will not lessen the pressure for rearmament. At most of the conventions it was taken for granted that the preparedness program will go through as planned and that rather drastic controls upon industry may be expected.

Obviously industrialists dislike the idea of living in a crisis-to-crisis atmosphere under restrictive regulations that are unprecedented in peacetime. Nevertheless, there is complete confidence that industry can do whatever is required to meet the situation. —pp. 29, 30, 31

* * *

FLAKE MICA IN PAINT: Electrical distribution transformers in service are subjected to temperatures ranging from 200° F to −50° F and to severe corrosive conditions. In seeking to find a suitable protective coating for these transformers, Westinghouse Electric Corp. has developed a 3-coat painting system which more than doubles the life of the finish.

The priming coat consists of a vehicle giving good adhesion and flexibility and pigments which are primarily zinc chromate and iron oxide. The second coat consists of a vehicle of modified phenolic and thermoset type alkyd resins and pigment composed of selected large mica flakes which overlap each other in the film and produce a shingle roof effect to ward off moisture and oxygen. The final coat consists of resins and pigments to withstand the elements and to provide a good appearance.

Key to the effectiveness of the paint system is way the mica flakes are used. —p. 56

* * *

NEW GEAR MATERIALS: Speakers at the semiannual meeting of the American Gear Manufacturers Association in Chicago last week covered a wide range of problems in the design and application of gears. Among the papers presented was one by C. M. Schwitter, International Nickel Co., in which he discussed the possibilities of nitraloy steels and ductile nodular cast irons for gears.

He stressed the importance of "aging" in connection with the heat treatment of nitraloy, stating that in some instances this has increased tensile strength from 132,400 to 192,500 pounds per square inch. In his opinion, ductile cast iron has possibilities in many applications ranging from small gears to anvils for large steam hammers. In its favor are good vibration-damping qualities, good bearing qualities, adaptability to flame-hardening, ability to be cast into intricate shapes and capacity to stand twisting and bending —p. 30

* * *

SHIPPERS CO-OPERATE: Tractors manufactured at the Peoria, Ill., plant of Caterpillar Tractor Co. are made up of 1500 to 2500 different parts, or 8000 to 12,000 parts altogether. To perform the task of receiving, storing and moving these parts and the materials from which some of them are made requires an efficient, integrated materials handling system. It is calculated that 20 tons of handling is required for each ton of tractors or diesel engines shipped from the plant.

Many difficult factors enter into the efficiency of this materials handling system, but one feature is of particular interest. Caterpillar enlists the co-operation of suppliers to ship their products in a way that fits into Caterpillar's handling set-up. For instance, suppliers ship radiator cores, generators, antifriction bearings, screw machine parts and some other items in palletized unit loads.

Often this type of co-operation effects economies for supplier and receiver. Undoubtedly more companies could practice this co-operation to mutual advantage. —p. 62

E. L. Shaner

EDITOR-IN-CHIEF

News Summary

PROBLEM IN PLATES— NPA is looking for ways to boost plate production without pinching the sheet and strip supply (p. 27). More plates were rolled each month in 1948 than now, although total ingot output is greater now than in 1948. By getting the ingot-plate ratio closer to 1948 proportions, NPA hopes to find a solution. Some private observers, notably speakers at a meeting of the American Institute of Steel Construction, think that NPA can't find the answer and that defense needs for plates and other steel products will hit civilian users far harder than now realized (p. 31).

WHAT'S AHEAD?— What adjustments will industry have to make to survive in the garrison state that's fast developing (p. 29). That was a question tackled at the Metal Show last week in a new business forum chairmanned by STEEL Editor-in-Chief E. L. Shaner. Consensus is that companies will have to devote more of their energies in developing better communications with Washington, to keep federal planners from going hog-wild on estimates for capacity expansions.

THE PEAK IS PAST— The peak in consumer buying hit in August and early September is past (p. 28). You can ascribe the downturn to the weather that normally cuts housing starts in October, seasonal cycles that slow auto and appliance sales in the fall or the federal credit curbs. The curbs may not have had great immediate effect on sales, but they're certain to hurt consumer spending in the long-run. Home construction may fall from 1.2 million this year to 800,000 next. Only about 4.5 million autos may be sold next year, compared with more than 6 million in 1950. Sales of major appliances may drop 25 to 30 per cent . . . The current production trends are reaching new highs (pp. 44-47). STEEL's index hit the alltime peak of 221. Steelmakers boosted their ingot operating rate to 102.5 per cent of theoretical capacity, another record. Factory production workers are getting nearly $5 per week more than a year ago.

AFTER THE ELECTION— Expect some federal action on price curbs after the election (p. 34). Administration officials admit the matter is being considered. On tap is a plan to roll back prices to the highest point between May 24 and June 24, 1950.

AUTO WORRY—Auto makers are betting that the government will curtail auto production, probably around the first of the year (p. 41). General Motors is hedging against such action by rejuggling its supply orders so that 100,000 more units than first planned can be assembled in November and December.

MIDDLEWEIGHT CHAMP— Watch for expanding production and uses of titanium (p. 30). That was the word at the Chicago Metal Show last week. Titanium within a few years may outrun magnesium in tonnage output. The metal is midway between steel and magnesium in weight. Many production problems still must be solved before a fast production pace is reached, but even so a record amount of 4.2 million pounds of titanium was used by iron and steel producers in 1949.

OVER THE HUMP— West Europe's steel exports are still heavy, but the peak of last summer has been passed (p. 37). Indicative of that is the move by Belgian producers to cut export prices a little. The European steel industry will continue at a high operating rate because the continuing overseas shipments and heavy domestic demands keep order backlogs two to two and a half times what they were a year ago. Domestic needs are bolstered by the rearmament program and large home-building programs.

HERE AND THERE IN INDUSTRY—Members of American Gear Manufacturers Association meeting in Chicago last week heard that ductile nodular cast iron and nitraloy steels are well suited for gear manufacture (p. 30) . . . Business outlook is good, members of the Wire Association were told (p. 30) . . . Steel is cheaper than dirt, U. S. Steel Corp. president Ben Fairless says (p. 33) . . . A revised program for producing military aircraft calls for production of 520 to 550 planes per month (p. 28) . . . Entire production and use of columbium bearing stainless steels are now reserved for defense needs (p. 33).

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Progressive Steel Making for the Industrial Midwest

"Take a good look at the SYKES... she's really two ships in one!"

"I'm Clyde Johnson, Second Mate on the S. S. Wilfred Sykes, newest ship in the Inland Fleet. If you live near the Lakes, you may have seen her. In that case you'll know what I mean when I say the Sykes is two ships in one. She's big—678 feet long, with a capacity of 20,000 tons of ore. And she's fast—makes a round trip between Superior and Indiana Harbor in five days. That's why she can haul 880,000 tons of iron ore in one season . . . actually the work of two ordinary lake freighters."

The addition of the S. S. Wilfred Sykes to Inland's iron ore fleet is just one more step in a continuous modernization and expansion program. This constant improvement of every phase of steelmaking facilities is further evidence that Midwest steel users can put their confidence in Inland as a progressive and dependable source of steel in peace and war.

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STEEL
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Answer to Plate Problem Near

NPA doesn't want increase in plate output to be at expense of sheet and strip supply. It will allocate its first steel —308,466 tons monthly—for freight cars beginning Jan. 1

THERE'S HOPE the country's defense needs for steel plate can be met without putting a tight pinch on the sheet and strip supply. In fact, the National Production Authority's Iron & Steel Division will not at this time urge any conversion of sheet and strip facilities to plate production.

That's the encouraging news filtering out of the National Production Authority's Iron & Steel Division which has been burning the midnight kilowatts trying to figure out a metalworking parallel for the "have your cake and eat it too" adage.

Grand Rush—When the news out of Washington started bristling last summer with preparedness declarations one of the first things to come into focus was railroad freight cars. From a dribble of orders in June the demand for new freight cars turned into a torrent under the blessing, but largely under the insistence, of Washington. Freight cars take a lot of plate, and right away the government, the steel industry and the car builders started concerning themselves with how to get enough plates to the car building industry. Other metalworking companies began worrying about what this would do to them.

They should have their answer soon. NPA's Iron & Steel Division has allocated its first steel, 308,466 tons monthly, starting Jan. 1 to construct 10,000 freight cars monthly. This is not a DO program but what NPA calls a "directed" program. The monthly product breakdown by tons is:

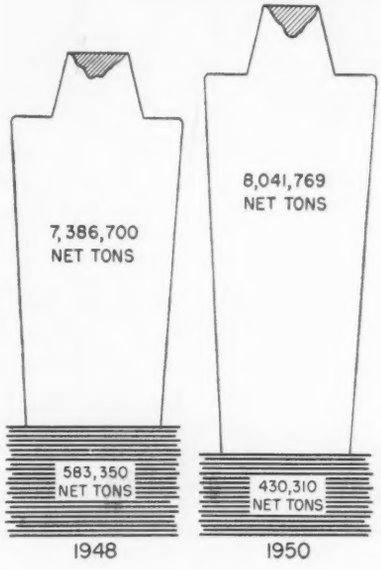
Plates	126,623
Hot-rolled sheets	29,685
Shapes	64,951
Hot-rolled bars	35,655
Galvanized sheets	6,045
Pipe	2,705
Semifinished	1,172
Axles and/or axle billets	21,330
Wrought steel wheels	20,300

Room for Expansion—The first, and chief, possibility of meeting the forthcoming DO-rated plate demands is seen in the production statistics of the American Iron & Steel Institute.

During the first eight months of 1950, net plate shipments (excluding shipments to members of the industry for conversion into further finished products or for resale) was 3,442,482 net tons. This is at a rate of 430,310 tons a month. In 1948, under stimulus of the freight car program of that year, net plate shipments totaled 7,000,199 tons, an average of 583,350 monthly. And in 1948, steel ingot production was at a lower rate than this year's (see accompanying chart).

So the Iron & Steel Division is studying the possibilities for upping the production rate to the 1948 level. Much can be done toward reaching this objective by carefully allocating tonnage so that mills can roll continuously without losing time for roll changes and other interruptions.

Plate Production Dropped While Ingot Output Gained



Looking for ways to get sufficient steel to the freight car builders, the NPA studies the possibility of upping plate output. The average monthly rate of plate production in 1950 has been 430,310 net tons, not as high as that of 1948 when there was a freight car program. Yet the monthly average rate of ingot production in 1950 has been 8,041,769 net tons, exceeding that of 1948.

Solution No. 2—The other possibility is seen in substituting low-alloy, high-tensile sheet for heavier-gage plain carbon plate, not only in freight cars but in other rated plate requirements soon to come up for action. Substitution on a scale which would materially ease the plate situation without severely pinching the sheet and strip supply appears possible in view of the likelihood that production of many products which normally consume large tonnages of sheet will be limited.

At the same time, an effort is to be made to make sure sheet production equals or tops that of 1948. In that year, according to AISI statistics, production of thin-gage material was:

Hot-rolled sheets 7,786,056 net tons; cold-rolled sheets 6,867,775 tons; hot-rolled strip 1,662,787 tons; cold-rolled strip 1,783,383 tons. The 1949 production was approximately 15 per cent less. If the 1948 production rate can be maintained, or exceeded, the supply problem will be eased materially.

Continue On—In view of these possibilities, the NPA Iron and Steel Division at this time will not urge any conversion of sheet and strip facilities to plate production.

Many orders of deep significance to consumers are in preparation by the NPA and some of them are to be issued as quickly as they get over the legal hurdles. The steel warehouse order, following a discussion with the Steel Products Industry Advisory Committee on Oct. 25, is being put in final form; its main features are described in STEEL, Oct. 23, p. 38.

Something To Watch For—Aluminum, copper and zinc orders are being written for early application. These will be along the lines of NPA Order M-1 which set forth the rules governing distribution of DO-rated steel orders. The question of issuing end-use limitation orders for a number of metals—similiar to the M-3 order reserving the entire production of columbium-stabilized stainless steels for defense needs—is getting hot. Such an order is projected for aluminum. The zinc situation is described as "extremely critical, as bad as that in nickel." Cobalt presents a difficult problem because of the big and growing use of this metal in magnetic alloys and Stellite-type alloys. Cadmium is so critical that even now the DO-rated orders call for more than the current production of this metal.

While the above metals represent the major hot spots in the NPA picture—as far as the need for im-

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mediate action is foreseen—the situations in manganese, chromium and tungsten are described as "critical, requiring early attention."

Weather or Curbs?

Have government controls or the weather put the brake on consumer buying of late?

GOVERNMENT controls on installment buying of automobiles and appliances coincide with a moderate decrease in sales thus far. Federal action to curb home building has brought as many verbal complaints as actual slowdowns.

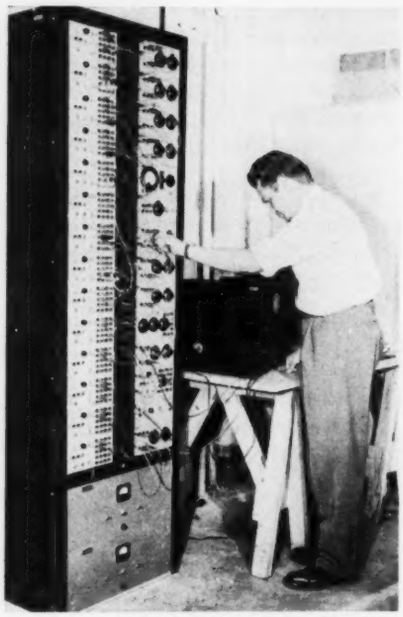
Activity in all those lines is still high. Sales trends in automobiles and many appliances often fall in September and October from the August peak, so some of the decline may be attributed to seasonal patterns. Bad autumn weather usually curtails home building, so some of this decline is natural, too.

The Other Side of the Mountain—Whether the weather, seasonal cycles or government controls have had the most to do with braking consumer spending, the fact is that the peak of the buying spree reached in August and early September is past. Consumer credit reached an alltime high of nearly $21 million in August. Department store sales are leveling off, although still 5 per cent above what they were last year. Auto and truck sales won't again pass the 800,000-a-month mark they exceeded in August, but in October they'll top 700,000 comfortably, compared with a 600,000-rate a year ago.

The nation experienced an 18 per cent decline in the number of new dwelling starts in September, partly in anticipation of the construction restrictions that went into effect Oct. 12. An estimated 115,000 new homes were begun in September, compared with 141,000 in August. Nationally, construction starts often drop 5 to 10 per cent from August to September in a seasonal decline. New starts in September, 1949, were 100 000.

In the Long Run—Credit finagling by the government has not had severe effects on immediate sales, but what about the long-term outlook? Labor leaders and businessmen are for once in agreement. They say that the prospects for 1951 will be sharply affected by federal credit restrictions. As of now, look for construction of new dwellings to be only about 800,000 in 1951, compared with an estimated 1.2 million this year. Only about 4.5 million passenger cars may be sold in 1951, compared with more than 6 million in 1950. Sales of major appliances may drop 25 to 30 per cent in 1951, compared with 1950.

The Federal Reserve Board promises a "constant review" of the credit regulation situation. Now, you must pay a third down on a new car and the balance in 15 months, a fourth down on appliances and the balance in 15 months. The housing regulations require a 50 per cent down payment on a house in the $24,500 class. Twenty years is the limit on most mortage repayments.



WHAT'S YOUR PROBLEM? An engineer in Boeing Airplane Co.'s mechanical equipment unit uses a BEAC (Boeing Electronic Analogue Computer) to simulate the flight of an airplane under automatic control and to solve one of the problems arising from it. Development of the computer—it promises to become a companion to the engineer's slide rule—was announced last week. Its cost: About $5000. It is operated by a switch panel, similar to a small telephone switchboard, containing five basic operational components required to do any calculating in BEAC's field

Military Aircraft Output Rises

The revised program for producing military aircraft calls for an output of 520 to 550 planes per month. Before Korea the output was 215 per month. In June, 1944, 9117 planes were manufactured. The appropriations for fiscal 1951 will provide $6.7 billion the equivalent of $4.24 billion in 1942 dollars based on the change in the industrial price index. Peak war aircraft appropriations in fiscal 1942 were $23.6 billion.

The increase in the cost of military aircraft since 1939 is 143 per cent. It reflects higher prices and the qualitative superiority of current equipment over its prewar counterpart.

Estimates of the time required to produce and deliver some typical aircraft components, assuming the design is already fixed are: Superchargers 30 weeks, gun mounts 17 weeks, altimeters 17 weeks, brakes 21 weeks, air ducting 8 weeks, magnesium sheet 34 weeks, aluminum sheet 17 weeks, cable assemblies 15 weeks, aluminum forgings 17 weeks, plexiglass windows 13 weeks, fire extinguisher equipment 17 weeks.

Raw Material Prices Rise

Prices of a representative group of materials required by iron and steel companies averaged 41 to 287 per cent higher on Aug. 15, 1950, than their averages during 1936-1939, says American Iron & Steel Institute.

Fifteen of 30 major raw materials had been advanced in price more than 100 per cent as of Aug. 15 from their prewar averages. Thirteen other materials were 50 to 100 per cent higher. Large increases include: Palm oil 287 per cent, purchased coke 199 per cent, purchased coal 189 per cent, zinc 189 per cent, open-hearth scrap 170 per cent, cement 112 per cent. Wages of construction labor have risen 145 per cent.

Some prices of electrical goods increased 27 per cent between mid-June and mid-August this year. In the same interval, tin prices rose 35 per cent, lead 17 per cent, aluminum, nickel, scrap and repair materials 20 per cent. Increases of 10 per cent were noted in the same interval in prices of palm oil, office paper, castings, forgings, wooden kegs and mill supplies.

Want To Pressure Weld?

A widely-discussed invention of importance to the metals industry has been entered on the Register of Patents for License or Sale maintained by the United States Patent Office. Granted Sept. 12, 1950, and numbered 2522408, the patent covers the welding of aluminum and other nonferrous metals by pressure without the application of external heat. It covers the design of welding tools and the technique for controlling pressure so that "the metal of the surfaces to be joined cold flows into intimate contact to form a solid-phase welding bond." Owned by the General Electric Co. of London, the patent is offered for license "on reasonable terms" by the U. S. representative, the Kold Weld Corp., 10 East Fortieth St., New York 16.

ward for 1949 at the twenty-first annual meeting of the association last week in Baltimore.

The award was made to him for his paper, "Welding in the Wire Industry."

Attending the convention were more than 300 persons, including three wire makers from England, two from Germany, three from Belgium, nine from Canada, three from India and one from Sweden.

This year's Mordica memorial lecture was given by J. L. Schueler, general superintendent, Continental Steel Corp., Kokomo, Ind. His subject was "Design and Manufacture of Woven Wire Fence."

The 1951 annual convention of the Wire Association will be held in October at the LaSalle Hotel, Chicago. Ralph Rolph, vice president, Ludlow-Seylor Wire Co., St. Louis, will be program chairman and Eber Hubbard Jr., Hubbard Spool Co., Chicago, will be chairman of the smoker and dinner.

A regional meeting of the association is scheduled for Apr. 19 and 20 at Hotel Connaught, Hamilton, Ont., Canada. James Galloway, works manager, B. Greening Wire Co., Hamilton, Ont., will be chairman.

Wire makers will meet in Atlanta in May upon invitation of Atlantic Steel Co., which will be observing its fiftieth anniversary. Directors of the Wire Association will hold their annual meeting then at Atlanta instead of at New York. Headquarters for the Atlanta meeting will be the Biltmore Hotel.

Civilian Outlook Better

Improvement in the Korean situation will enable the nation's electrical manufacturing and distribution industry to make firm commitments for future delivery on materials for civilian needs, said G. F. Hessler, vice president of Graybar Electric Co., in a talk before the Pacific Division of National Association of Electrical Distributors.

"I believe that we are going to be able to carry along a more sizeable portion of our civilian economy without seriously impairing either it or our preparedness program," he says.

Reviewing the situation in production facilities, raw materials and manpower, he believes plant facilities are adequate or can be. Raw materials constitute the most crucial problem. Mr. Hessler predicts a return of controls on copper, of which the electrical industry consumes about 50 per cent of the total available supply. He says a manpower deficiency can be partly offset by expansion in electric power resources.

Fabricators Warned of Steel Pinch

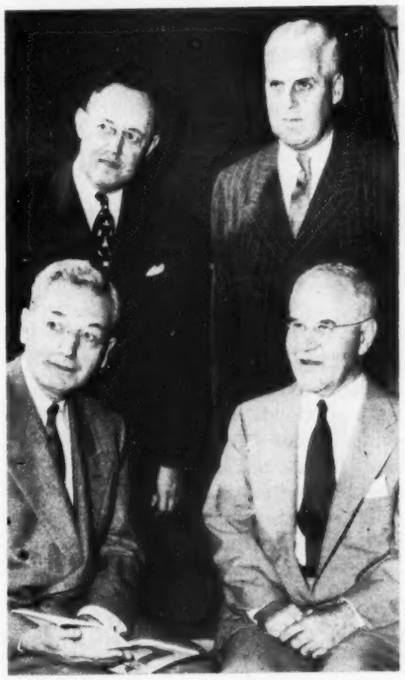
Civilian consumers will get less material as defense programs mature, B. S. Chapple tells American Institute of Steel Construction, meeting in Houston

IMPACT of the defense program on the civilian economy is likely to be far more severe than previously believed. More specifically, metalworking companies can expect to get less steel unless orders bear the National Production Authority's DO stamp.

Rated orders, too, can result in distribution problems, since it should be remembered that the military's hundreds of procurement offices can employ the DO stamp at present with but limited internal co-ordination.

So warned Bennett S. Chapple Jr., assistant vice president, United States Steel Corp., speaking before the American Institute of Steel Construction at its twenty-eighth annual meeting in Houston, Oct. 23-26.

Ceilings—Mr. Chapple pointed out that no steel producer, unless specifically directed by NPA shall be required to accept rated orders in any one month in excess of certain percentages of his average monthly shipments during the first eight months of 1950. For hot and cold-rolled carbon steel sheets and strip the figure is 5 per cent; for hot-rolled and cold-finished bars, 10 per cent; and for structural, plate and piling, 15 per cent. In addition, the overall ceiling for carbon steel in any one month is 15 per cent; for alloy steel it is 25 per cent.



Caught together at the American Institute of Steel Construction meeting in Houston were: (seated, left to right) N. R. Patterson, Patterson Steel Co., Tulsa, Okla.; R. D. Wood, Mississippi Valley Structural Steel Co., Chicago; standing: John E. Jackson, Pittsburgh-Des Moines Steel Co., Pittsburgh; L. Abbett Post, executive vice president of American Institute of Steel Construction

What Do They Mean?—These figures require interpretation, Mr. Chapple said. Take plate as an example. The steel industry shipped an average of 600,000 tons per month in the first eight months of 1950. (This figure includes shipments to members of the industry for conversion into further finished products; net plate shipments as reported by the American Iron & Steel Institute, page 27, averaged about 430,000 tons for the first eight months of 1950). The 15 per cent military space reservation for plates would be 90,000 tons, thus leaving only 510,000 tons for civilian distribution.

But the freight car program calling for 10,000 cars per month will take 310,000 tons of steel monthly, including 65,000 tons of shapes and 126,600 tons of plate. Taking 126,600 tons from 510,000 leaves 383,400 tons of plate per month for civilian uses. Thus less than two-thirds of the steel plate the steel industry has been producing will be available.

Other programs will take a big chunk of the remaining two-thirds, these including lake vessels, fast cargo vessels for the Maritime Commission and projects for the Departments of Agriculture and Interior.

Fabricating Capacity Up—As for America's fabricated structural steel industry, it has ample capacity to provide for both civilian construction requirements and at the same time convert a substantial portion of its facilities to defense work. Since VJ-Day, new plants have been built and tremendous amounts of equipment installed with the result that capacity now is 4 million tons annually and "quite beyond the foreseeable load either in peace or war," according to AISC President N. R. Patterson, Patterson Steel Co., Tulsa, Okla.

Like other segments of the metalworking industry, fabricators have

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been experiencing a boom in business in the last few months. Bookings in 1949 were the poorest in four years, averaging only 119,414 tons monthly.

20-Year High—In third quarter of 1950, bookings skyrocketed to an average of 257,000 tons monthly, highest for any quarter since the last three months of 1929. Bookings for 1950 are estimated at 2,437,000 tons, up one million tons from 1949 and the biggest for any year since 1930. Defense work includes construction for the Atomic Energy Commission, tanks, trucks, Bailey bridges and unit construction railroad bridges. This work already is being expedited by DO ratings.

Parade, Not a Crowd—Dr. Kenneth McFarland, Topeka, Kans., school superintendent, told AISC to keep selling its products and services as there are 10 million more people in the U. S. today than 10 years ago and "this public isn't a crowd, it's a parade."

Knowles Gets Appointment

Col. Miles H. Knowles, Washington business consultant, was appointed vice president in charge of defense production for U. S. Radiator Corp. He will continue as Washington representative for the Non-Basic Steel Coordinating Committee, composed of steel fabricators having wage contracts with the United Steel Workers —CIO.

'Save 50 Per Cent on Labor'

"Fifty per cent in direct labor costs can be saved in some industries through improved handling of materials." So said A. T. Gaudreau, management consultant, speaking at the Westinghouse third biennial Materials Handling Conference in Buffalo last week.

This does not mean, Mr. Gaudreau pointed out, that equipment purchased blindly will do the trick. Processing steps should be studied to cut, if possible, the number and sequence of operations, number of parts handled (by processing assemblies). Tools and dies might be redesigned to simplify operations, and the product redesigned to facilitate materials handling.

During the two-day affair, about 125 persons representing 27 materials handling machinery builders, heard 15 technical papers ranging from how to evaluate crane bids, to conveyors and the military supply prob'em.

Fred A. Miller, Du Pont materials handling consultant described tiering from overhead with a "stacker crane," so called because the stacking feature of a fork truck is simply attached to the trolley of an overhead bridge crane. This new development maintains maximum storage capacity and still achieves the economies possible by the fork truck and pallet system.

Two new devices were unveiled by the host company. A single-adjustment AC brake and a new AC crane control.

Wide World

RACING THE CLOCK: Making a final attempt to obtain working capital to survive, Waltham Watch Co., Waltham, Mass., is rushing to completion nearly 250,000 watches that were on the racks when Reconstruction Finance Corp. shut down the plant last February

Lone Star Opens Pipe Plant

Lone Star Steel Company has begun operation of its new $1.5 million cast iron pressure pipe foundry at Daingerfield, Tex., at the site of its blast furnace properties.

Also just completed is a new tailings pond at the ore beneficiation plant, about three miles from the blast furnace. The new pond receives rejected material from the ore plant. It covers 45 acres, and will provide tailings space for several years.

Lone Star has contracted to supply 30,000 tons of pig iron to Chrysler Corp. during the next 15 months, Lone Star President E. B. Germany says.

Porter To Spend Half Million

H. K. Porter Co. Inc., Pittsburgh, intends to spend upward of $500,000 in expending production facilities of recently acquired Connors Steel Co., Inc., Birmingham. E. T. Evans, president of both companies, states expansion plans at Connors Steel include improved heating furnaces, more efficient flant layout and enlarging rolling mill facilities. The expansion program will be activated as soon as the necessary depreciation certificates can be produced from the government, since it is felt this is the only practical way to embark on an extensive expansion of facilities under present tax laws.

Connors Steel has two electric arc furnaces with combined rated capacity of 60,000 tons of ingots annually.

Steel Is Cheaper Than Dirt Says Fairless

STEEL is cheaper than dirt, says Benjamin F. Fairless, president of U. S. Steel Corp. In a speech before the California Manufacturers' Association in San Francisco, he said that the low price of steel is an outstanding and little understood reason for the present shortage.

"Steel is so cheap today that few people can afford to use substitutes for it," Mr. Fairless says. "If we were willing to charge as much as consumers would be willing to pay for our products, much of this apparent shortage would disappear. But that is not our way. We increase prices only under the compulsion of mounting production costs."

The average price of all the finished steel sold by U. S. Steel this

year has been just under a nickel a pound, and some products sell at less than 3½ cents. "What else," asks Mr. Fairless, "can you buy today for 3½ cents a pound? If you lived among the cliff dwellers of New York city, and if you wanted a little potting soil to put around geranium plants on your window sill, you could buy it at your neighboring seed store for seven cents a pound—twice as much as some finished steels cost you."

Mr. Fairless scores the congressional investigations on steel price increases. "Isn't it about time that we began to develop a little realistic perspective about prices and stop making steel a political football?" He pleads for a "workable line of communication between industry and government so that both may have a mutual understanding of each other's problems."

How To Cut Transport Costs

What can you do about rising transportation costs? A Port of Pittsburgh Survey Committee has been studying that question and has just come up with an answer.

The committee recommends that a Port of Pittsburgh Authority, similar to the Port of New York Authority, be formed to administer a project that will save Pittsburgh shippers an average $5.21 per ton in transportation costs on all kinds of merchandise. The committee favors construction of a $3 million rail-river-truck terminal and warehouse to handle 500,000 tons of material a year. That tonnage includes small lots as well as large. Small lots will be consolidated to make available volume freight rates.

Freight savings, which range from 43 cents per ton on refractories to $23 per ton on high-grade glass, are possible because the terminal will be able to make unprecedented use of Pittsburgh's geographic position at the head of the Mississippi-Ohio river waterway system.

The Port of Pittsburgh Survey was conducted by authority of the Commonwealth of Pennsylvania. A Port of Pittsburgh Authority can be created under provisions of Pennsylvania's Municipal Authorities Act of 1945.

Wage Hearings Scheduled

Amendment of the present 75-cent-an-hour minimum wage determination for employment in the small arms ammunition, explosives and related products industries on government contracts let under the Walsh-Healey Public Contracts Act will be considered at a public hearing in Washington Nov. 28.

The Labor Department says a survey "indicates that the 75-cent rate in effect may not reflect the prevailing minimum wages in those industries." The hearing is scheduled under provisions of the act which authorized the secretary of labor to determine the prevailing minimum wages to be paid employees engaged on supply contracts in excess of $10,000.

'Divide & Conquer' Approved

First of the victories that labor leaders are expected to gain from the recent appointment of George J. Bott as general counsel of the National Labor Relations Board is a decision supporting the union's so-called "divide and conquer" strategy. The issue came up some months ago in a milk strike in Washington when the union struck one dairy to force on the rest of the industry the terms won from the struck company. The other dairies promptly closed up shop on the ground that it was customary to bargain as an industry with the industry union—so that a strike against one was a strike against all. When the union brought lockout charges, Robert N. Denham, then general counsel, dismissed them as "wholly unrealistic and unfair to the principles of sound bargaining." Now the board has reversed this policy with the approval of Mr. Bott. In a case involving a Chicago liquor dealers' association it sustained lockout charges when all dealers joined in accepting a strike against one of the association members.

Critical Occupation List Grows

Secretary of Labor Maurice J. Tobin has expanded the list of critical occupations by including three additional occupations and extending the field of coverage of two others included on the original list. Occupations added are blacksmith, hammersmith and electronic technician.

The definition of the occupation of molder has been interpreted to include the manufacture of molds for plastic products. Originally the definition applied only to molds for metal products. The definition for stillman has been expanded to include those batch-still operators, continuous still operators and treaters engaged in the manufacture of chemicals. Formerly the definition for stillman applied only to petroleum processing.

Blacksmiths and hammersmiths now covered by the list are employed where forging, shaping, sharpening and tempering of metals are essential. An electronic technician is considered essential in any field, except service or repair of broadcast and television receivers, public address systems, commercial x-ray machines and electric organs.

Titanium Usage Sets Record

More titanium was used in the manufacture of steel in 1949 than ever before, the American Iron & Steel Institute reveals.

The record amount consisted of 4.2 million pounds.

Titanium, which is becoming an important metal in its own right, has long been a familiar alloying element in the steel industry. It strengthens certain steels at elevated temperatures and aids other alloys in producing that effect. It is used in the making of some stainless steels and tool steels. Steel sheet and strip for enamel coating or tin plating often contain titanium because of the beneficial effect of the element on surface quality.

Automobile fenders and crowns may be made from deep drawing, titanium bearing steel.

Until recently, India was the largest producer of titanium ores, but during World War II the United States took the lead. Today, the world's largest titanium mine is in the Adirondack mountains of New York state. Metallurgically useful ores generally contain 24 to 36 per cent of the element.

Columbium Steels Restricted

Entire production and use of columbian bearing stainless steels are now reserved for defense needs.

The limitations were imposed by a National Production Authority order. NPA said it took the action because ferrocolumbium and ferrocolumbium-tantalum, which are used for producing columbium stabilized stainless steels, are in short supply and are required for the defense program.

These alloys are used primarily, NPA officials explained, in high combustion chambers and in the processing of certain chemicals, and not in consumer type goods such as homewares, refrigerators, and automobiles.

In addition to limiting production, distribution and use of ferrocolumbium and ferrocolumbium-tantalum to defense rated (DO) orders, NPA's decree stipulates that the use of ferrocolumbium bearing steels is prohibited in any application or process where ferrocolumbium-tantalum bearing steels may be substituted and that the use of either of these alloys is prohibited where any other substitutes can be used.

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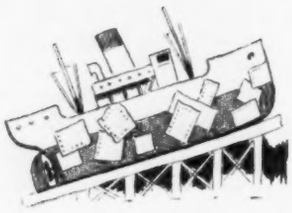
Windows of Washington

By E. C. KREUTZBERG *Washington Editor, STEEL*



Patch Up Merchant Fleet

Price Rollback

Wanted: Inventors

Big RFC Loans

Maritime Administration is watching its purse strings . . . Dr. Valentine isn't saying so but price rollbacks are bound to come . . . Defense could use a lot of inventions

TO PUT its reserve fleet of merchant vessels in good condition and to keep the country's ship repair industry in a healthy condition, the Maritime Administration (MA) placed repair contracts with 23 yards. Contracts cover underwater work on 25 Victory ships, topside work on 19 of them. The rest of the topside contracts will be let soon.

MA will open bids shortly on repairs to an additional 25 Victory ships; it hopes later to take similar action on an additional 50. Higher costs on the work may cut down the number in the repair program. Only $18 million is earmarked for it this fiscal year.

New Construction?—MA decided to take another look before committing the $68 million for new ships this fiscal year. The meaning: There won't be an immediate award on a contract for preparing contract plans and detailed working plans for a 20-knot, 12,500-ton dry cargo ship. It also means there will be no immediate award of a new charter to operate the "Good Neighbor Fleet" to the east coast of South America with the stipulation that old vessels now in the fleet be replaced by new ships.

Rollbacks Bound To Come . . .

Though Dr. Alan Valentine, director of the new Economic Stabilization Agency isn't saying anything about his price or wage control plans, other administration officials admit that rollbacks in prices are getting serious consideration. On tap is a plan which contemplates establishment of ceilings at the highest prices in the period May 24 to June 24, 1950, as authorized under Section 402 of the Defense Production Act.

Prices Are High—The men who pass the word along—they can't be identified—point out that prices in general have increased an average of at least 25 per cent since last April. Price rollbacks, they say, will be forced by one factor alone: The need to ask Congress for a supplemental military appropriation for the present fiscal year. At present prices it would be necessary to ask for an additional $7.5 billion just to carry out the program for which Congress appropriated $30 billion. The request for rollbacks would, naturally, raise a big storm: Many congressmen would want to know why the President had not availed himself of his powers to keep inflation in check.

Those government economists who favor price rollbacks say recent corporate earnings statements show that there is plenty of leeway for setting price ceilings below present levels without depriving industry of fair profits.

Ideas Needed for Defense . . .

If you are an inventor, and interested in contributing to the rearmament program, write to the National Inventors Council, Department of Commerce, Washington 25, D. C., for a copy of its "1950 List of Technical Problems Affecting National Defense."

It contains detailed descriptions of 21 vitally important needs: Method for rapid splicing of assault and field-type wires; an extra-light, gasoline-operated snow vehicle; machinery for fabrication of and method of welding titanium; adhesive for holding explosives in extreme cold; adhesive for miscellaneous industrial uses in extreme cold; automatic coupling joint for fixed and floating bridges; lightweight unicellular foam filler that can be produced in the field; radically new methods for fast cargo discharge from ships; a substitute for down and feathers; a snow and ice mole; a personal heating system for use by men not provided with shelter; an over-surface vehicle capable of traveling over Arctic terrain; practical method of destroying tell-tale tracks of men on foot, or vehicles, across snow fields; a quick method of stabilizing certain flat surfaces so that they can be used as "nearly normal" roads, heavy bomber fields, etc.; inexpensive method for rapid conversion of snow and ice into drinking water in quantity; heated clothing for use in low-activity-level occupations; oil and gas-resistant gloves for use under Arctic conditions; device for protection of head and respiratory tract against cold; rubber or rubber-like materials that will function over the temperature range minus 65 to plus 160° F; engine and personnel heaters for vehicles.

Metalworking Loans . . .

Larger new Reconstruction Finance Corp. loans of interest to the metals industry include:

Pacific States Steel Corp., Niles, Calif, $1,175,000, for ten years.

Piasecki Helicopter Corp., Morton, Pa., developers and manufacturers of military helicopters, increase of recent $600,000 RFC loan to $850,000, for eight years.

Northwestern Refining Co., St. Paul Park, Minn., $1 million, for ten years.

Standard Steel Works, North Kansas City, Mo., metal fabricators and manufacturers of oil, roadbuilding and agricultural equipment, $729,000, for one year.

Plastic Wire & Cable Corp., Jewett City, Conn., manufacturer of plastic coated wire, $1,950,000, for one year.

Heckethorn Mfg. & Supply Co., Littleton, Colo., manufacturer of precision metal products, $500,000, for six months.

Dorsey Trailers Inc., Elba, Ala., manufacturer of truck trailers, $1.5 million, one year.

Southern Coach Mfg. Co. Inc., Evergreen, Ala., bus manufacturer, $1,981,000, for 18 months.

Fox Metal Products Corp., Fort Logan, Colo., manufacturers of prefabricated aluminum houses, grain bins, and sheet metal contractor, $670,000, for three months.

Lavoie Laboratories Inc., Morganville, N. J., electronic products, $600,000, for seven years.

Crest Passed in Europe's Steel Exports

But overseas shipments and domestic demands are still heavy and keep steel mill order backlogs two to two and a half times what they were a year ago

THE CREST has been passed in the soaring European steel export trade.

Belgian producers, always acutely sensitive to market shift, have cut export prices a little. Yet European order backlogs are still two to two and a half times what they were a year ago as exports continue high and domestic steel needs hold.

Ballast for Steel — One domestic program that will help keep steel mills busy is a $5 billion roadbuilding scheme that will cover the continent with a network of traffic arteries. The program is still in the embryonic stage, but, barring war, chances are good that it eventually will be implemented. Much of the roadbuilding machinery will have to be imported, probably from the United States.

All Western Europe is riding a plant and housing construction boom. Home building in Germany has been particularly active in the last two months. In the first six months of 1950, 68,000 net tons of steel for construction purposes were ordered from German steel mills, an average of more than 11,000 tons per month. In August 52,600 tons were ordered.

More on the Books—West German steel plants had order backlogs for 2,060,000 tons of rails, structurals, bars, strip, sheets, plates, tubes and rolled steel as of Oct. 1, 1949. The backlog had jumped to 6,050,000 tons as of Oct. 1, 1950. The increase is typical of all Western Europe. But the rate of increase is declining—because of tapering exports orders. New orders on Ruhr rolling mill products booked in September amounted 1,980,000 tons, compared with 2,266,000 tons in August.

Korea Helps Ruhr Finances

Korea has given West German metalworking companies a financial shot in the arm. Look for a spurt in plant and equipment expenditures because of the improved position.

Steel and coal companies will expand the least because they still don't know their status under the reorganization programs. The Allies have requested a reorganization plan of German origin, and the government at Bonn is working on one now. Another element of confusion is the new Allied drive for deconcentration of the steel industry to minimize the effect of bombings. That scheme is only in the talking stage, but it may be implemented.

Scrap iron and steel supplies are higher now than a few months ago. German exporters may be able to ship 200,000 tons to the U. S. soon. Belgium, Luxemburg and France may stop all scrap exports shortly.

U.K. Steel Allocations Likely

British steel producers will turn out nearly 18 million net tons of ingots in 1950 for an alltime record.

Despite the high production, an allocations system may have to be revived to distribute the scarce material. For a time, manufacturers of goods for export may escape priorities, but makers of goods for domestic consumption will probably soon be subjected to some kind of distribution controls.

The auto industry is operating at only 80 per cent of capacity because of the shortage of sheets. Production has risen from 341,000 cars in 1938 to about 525,000 this year.

Shipbuilders need more steel because they are more active now in repair and new construction work than they have been for months.

The increasing tempo in British industries is bringing a labor shortage.

If there is a general election next spring and the Conservatives are returned to power, it would still be possible to pass an act reversing the nationalization of the steel industry. Although the steel industry becomes publicly owned next Feb. 15, actual effects of nationalization in day-to-day administration won't be felt until about next May.

French Auto Output Increases

French auto producers expect to produce 225,000 automobiles in 1950, a little better than last year. The steel shortage has not been as severe in France as in other countries.

Biggest producer in the nation is nationalized Renault which will build about 80,000 of the total. Citroen is the second largest manufacturer and will assemble about 63,000 units. About 1.5 million cars are on the roads of France, 300,000 fewer than in 1938. About 11,000 cars a month are going to the domestic French market; manufacturers are trying to increase that to 12,000 or 13,000. In the western world, France is fourth in auto production. The U. S. is first, Canada second, Britain third, Germany fifth and Italy sixth.

Prices on Renault models range from $806 to $1677; on the Citroen models from $1187 to $1758. French Fords go from $2050 to $2954.

Wholesale prices in France since last June have risen 10 per cent and retail prices 9 per cent.

Norway's Power Production Up

During the past five years, production of electricity in Norway has

NEA

THREE SIXES: This six-wheeled tractor has drive to all six wheels and can travel through water six feet deep. Flexibility of the wheel mountings was shown when it was on exhibition at the Earl's Court Commercial Show in London

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risen from 11 billion kwhr annually to 15 billion kwhr.

That increase has helped make possible Norway's rising industrial production. Last August the index reached a new high of 137 (1938 = 100).

Critical Ore Supply Rises

Imports of critical manganese and tungsten in the first half of 1950 were well ahead of the 1949 rate, the American Iron & Steel Institute points out.

Manganese imported in the first half of this year was equal to 80 per cent of the 1949 total, and tungsten imports in the first half exceeded those of all of 1949 by 27 per cent.

Chrome imports in the first half of 1950, the institute adds, were at about the same rate as last year.

U.S. Trade with Reds Falls

U.S. imports from the U.S.S.R. and other Eastern European countries decreased from $12.5 million in July to $9.2 million in August, a value about equal to the 1949 monthly average of $9.1 million but about 17 per cent below the $11.1 million monthly average for January-June, 1950, the Bureau of Census reports.

The decrease in imports from the U.S.S.R. from $4.3 to $2.2 million accounted for most of the decline. Greatest import declines were in furs, manganese and chrome.

Exports of domestic and foreign merchandise to the U.S.S.R. and other Eastern European countries decreased from $11.6 million in July to $11 million in August. The August value is about 39 per cent above the $7.9 million monthly average for the first half of 1950 and about 24 per cent above the 1949 monthly average.

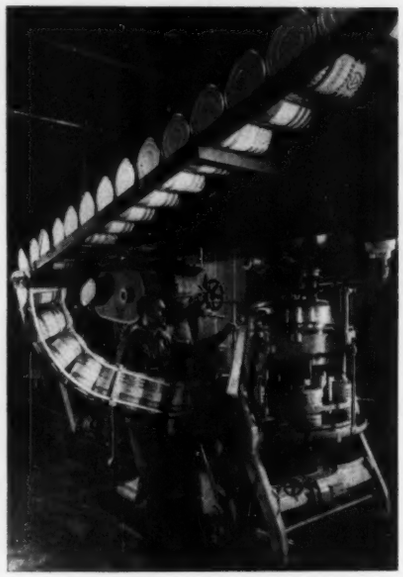
U.S. general imports from ECA countries rose from $91.2 million in July to $110.3 million in August, a level nearly 40 per cent above the January-June, 1950, monthly average of $80.4 million and 60 per cent higher than the $70.2 million monthly average for 1949. Imports from the United Kingdom increased the most.

August exports of domestic and foreign merchandise to ECA countries were worth $172.5 million, a slight increase from the July total of $167.6 million. The August level was about 30 per cent below the January-June, 1950, monthly average.

Bliss Allies with Bertram

E. W. Bliss Co., Canton, O., builder of metalworking presses of all types, is allying itself with John Bertram & Sons Co. Ltd., Dunda, Ont., so the Canadian manufacturer can build the complete line of Bliss mechanical presses besides its own offerings of special machine tools. The affiliation will allow Bliss' Canadian customers to take advantage of Bertram's extensive facilities and experience in machinery manufacture in providing a Canadian-built product while utilizing Bliss' 90 years of background in specialized press design and use.

Canadian inquiries for Bliss presses will be handled through the Bliss Canadian office in the Canada Bldg., Windsor, Ont.



SMOOTH FLOW: The new Cities Service Terminal and Compound plant at Cicero, Ill., was designed and built to compound, blend, package and ship 25 million gallons of lubricating oil annually. This five-quart filling and closing machine at the plant has a capacity of 35 cans a minute. The filling line for one-quart cans has a 300-can-per-minute capacity

Oliver Adding to Iowa Plant

Work is going ahead on a 30,000-square foot addition to the foundry of Charles City, Iowa, plant of Oliver Corp., says George W. Bird, manager of the wheel tractor plant. The project, first major increase in the company's facilities at Charles City since completion of the building and facilities for Oliver's 900-foot assembly line, will increase potential gray iron molding capacity by about one-third, enabling the company to increase tractor production as required.

The new facilities are scheduled for operations next June. Over a quarter of a mile of roller conveyor and 500 feet of tram will be utilized for handling hot metal and castings in the addition. Seven molding units will add their capacity to the 12 in the present 90,000-square foot building.

Navion Output Cut

Ryan is suspending production of personal business planes, anticipating military orders

RYAN Aeronautical Co. will suspend production of Navion personal business planes next year so the firm's entire facilities and personnel can work on military needs, says Claude Ryan, president.

The first production release of 1951 Ryan Navion models already in process of manufacture are scheduled for completion over the next six or seven months. No interruption in the program is anticipated. Military versions of the Navion—there are 250 in service—will be continued in production provided contracts now in the discussion stage are consummated.

Ryan officials emphasize that civilian Navion production is being suspended only temporarily, not terminated.

Rust Building for NACA

Rust Engineering Co., Pittsburgh, is building gas dynamics and internal flow laboratory buildings for the National Advisory Committee for Aeronautics at the Langley Aeronautical Laboratory, near Hampton, Va., at a cost of $3,813,679. Five buildings, the largest of which is one 127 x 226 feet, are being constructed of steel frame, brick and concrete. The facilities will be used for investigation of aerodynamic phenomena encountered in extremely high-speed flight.

Airco Division Gets Plant

Air Reduction Co. Inc. plans to begin construction immediately of a new plant at Union, N. J. The plant, mostly one story, will cover about 272,000 square feet on a 25-acre plot near U. S. Route 22. It will employ about 800 persons.

Air Reduction's Airco Equipment Mfg. Division will use the plant to make welding and cutting torches, tips, regulators, oxyacetylene cutting machines, acetylene generators, oxygen and acetylene manufacturing and distributing equipment.

Tracking Specs To Their Source

A new system of overnight procurement of hard-to-find government product specifications was established by the Los Angeles Chamber of Commerce for benefit of southern California defense manufacturers.

Because descriptive information on

which estimates must be based is not supplied locally or cannot be obtained before deadlines, the chamber's staff in Washington will track down specifications at their source. Direct teletype service, long distance telephone, special messengers, and air mail will rush specifications to Los Angeles plants.

Chamber officials hope the new system will shorten lengthy lines of communication with eastern centers, long the bugaboo of West Coast manufacturers in competition with eastern manufacturers who are closer to the source of government procurement.

Drayer-Hanson Is Reorganized

Drayer-Hanson Inc., Los Angeles, manufacturer of air conditioning and refrigeration equipment in receivership, has been reorganized. George J. Morton, president, and former Indiana industrialist who recently acquired an interest in the firm, discloses that 85,011 shares of new common stock will be issued share for share for the present Class A, and one new share for each 100 shares of common. The balance, plus $100,000 of five-year notes, will be issued for claims against the company.

Line Equipment Stretching

Building expansion programs are well underway at two Line Material Co. plants in Wisconsin. Line Material makes electrical supplies, including pole line hardware. Seven old buildings at the company's Central plant in South Milwaukee are being replaced by a one-story brick building of 27,000 square feet. About 60 per cent complete, the new building is expected to be ready for occupancy by the middle of next month. It will be used for some finished manufacturing and storage.

Anticipated cost of the new building and other portions of the program is about $70,000. A quonset building at the Central plant was transferred to the firm's Fibre Products Division plant at Barton, Wis., where it will be used for storage of finished goods and for expediting shipments.

Turbine-Type Supercharger

A turbine-type of supercharger for diesel engines was put into production by Waukesha Motor Co., Waukesha, Wis. The company believes it is the first such supercharger perfected for engines of 300 horsepower and under. It results in a material increase in horsepower without any increase in engine size, says J. E. DeLong, Waukesha president. Similar types have been made in foreign countries and in this country under license, but for large engines.

Waukesha Motor and Elliott Co., a Pennsylvania engineering and manufacturing firm, have been working on development of the turbine type of unit for a year. Waukesha put two models in production. Mr. De Long thinks the truck and bus fields will be the first market for the new supercharger.

Milwaukee Die Casting Growing

Milwaukee Die Casting Co. is building a new plant in the growing industrial area on the north side of Milwaukee. The company broke ground for a plant, investment in which will total nearly $300,000. The building will have 44,000 square feet of floor space and will give the company about a third more space.

Machines Make Jobs, Study Finds

Does labor-saving equipment throw production workers out of jobs? "No," says Michigan Tool Co., Detroit, in an eight-page booklet compiled by Denham & Co., Detroit advertising and public relations firm.

The booklet reveals that in every year in which the rate of installation of industrial equipment increased, the increase was either accompanied or followed by an increase in total employment of production workers in industry. For every year in which there was a decrease in the rate of acquisition of new machines, the decrease was accompanied or followed by a decrease in employment.

Copies of the booklet are available. Write Michigan Tool Co., 7171 E. McNichols Rd., Detroit 12.

Tin Research Men Visit U. S.

Bringing news of progress at the Tin Research Institute, London, England, to America is Dr. E. S. Hedges, director of research of the International Tin Research & Development Council. The Tin Research Institute has been greatly enlarged to accommodate work that previously had been done elsewhere.

With Dr. Hedges is W. R. Lewis, development manager of the institute. He plans to meet metallurgists to discuss practical problems arising in the use of solders, babbitts, bronzes and other tin alloys.

Kaiser Offers Steelmaking Film

A 22-minute motion picture that explains the making of steel from mining of ore and coal to the rolling of semifinished and finished products is available for group showings by Kaiser Steel Corp., Oakland, Calif.

"Strength in the West" is the title of the 16-millimeter color and sound film. It can be obtained free by writing to Public Relations Department, Kaiser Steel Corp. Requests should be submitted about ten days in advance of intended showing date.

MAN SAVER: The Mead Mighty Mouse is something that almost everyone would find handy to have around. Besides its use as a bulldozer, grader and hauler around construction sites, estates and farms, it can be used as a mower. Attached to it here is a Matt Hammer Knife Mower, a series of hinged knives whirling with centrifugal force from a center shaft. It cuts, shreds and spreads grass or weeds evenly over the ground, making a fine mulch. The Mighty Mouse is made by Mead Specialties Co., Chicago

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SEVEN STRONG REASONS

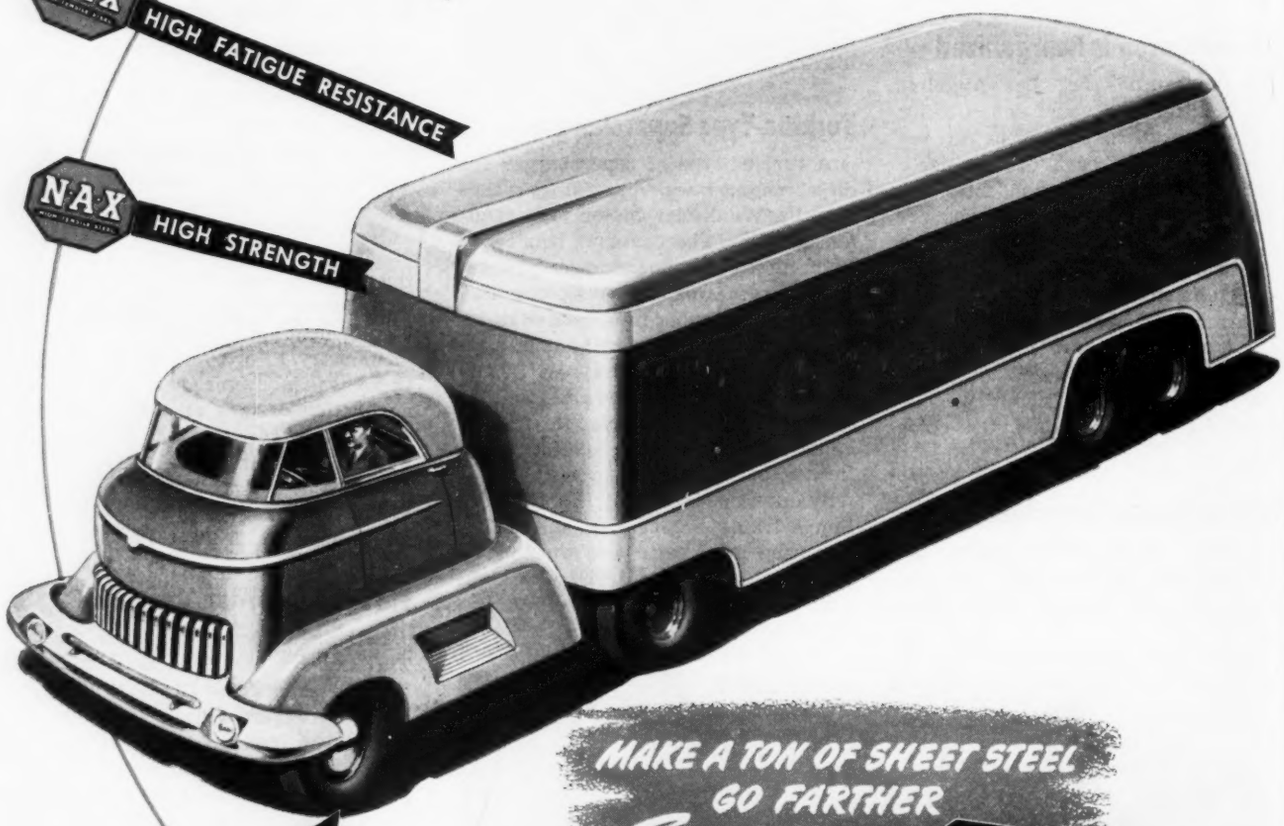
A better steel for the purpose in hand has always found favor with manufacturers of commercial vehicles . . . currently the trend is to N-A-X HIGH-TENSILE steel.

N-A-X GREAT IMPACT TOUGHNESS

N-A-X FINER GRAIN STRUCTURE

N-A-X HIGH FATIGUE RESISTANCE

N-A-X HIGH STRENGTH



N-A-X GOOD FORMABILITY

N-A-X HIGH CORROSION RESISTANCE

N-A-X EXCELLENT WELDABILITY

MAKE A TON OF SHEET STEEL GO FARTHER

Specify—

N-A-X

HIGH-TENSILE STEEL

GREAT LAKES STEEL CORPORATION

N-A-X Alloy Division, Ecorse, Detroit 29, Michigan

NATIONAL STEEL CORPORATION

By A. H. ALLEN *Detroit Editor, STEEL*

Mirrors of Motordom

Because GM thinks there'll be cutbacks in auto production around the first of the year, it's doing its best to shift as much output as it can to November and December

DETROIT

AUTO companies believe there will be an arbitrary cut imposed by the government on passenger car production, taking effect probably around the first of the year. Announcement likely will be deferred until after the election, but manufacturers already are taking steps in anticipation of the order, shifting as much production as possible from January and February back to November and December. General Motors, for example, is trying to work out supply problems so that 100,000 units can be moved ahead two months.

What It Means—If a percentage reduction is imposed by government edict, based on fourth-quarter output, there will be a higher base to start slicing from and the effect of the cut will not be as serious. But it's no simple matter to boost parts and materials intake to cover the higher November and December rate. Apparently ample steel is in sight, and some vendors are adding overtime and Saturday work to meet the stepped-up releases. There is a feeling that the principal reason for ordering reduced passenger car output is the effect it will have on public opinion, that is, making people more conscious of a semi-war economy.

If it means layoffs in the auto plants, though, an inevitability if there are no military contracts ready to take up the slack by that time, the net result may not be too palatable.

The UAW-CIO has sensed the danger of oncoming layoffs that might result from a serious drop in car sales because of new credit restrictions. It has called on the Federal Reserve Board to hold in abeyance regulations W and X restricting consumer credit for the purchase of automobiles, household equipment and houses until a government sponsored labor-management conference of the industries involved has had opportunity to make recommendations.

Cart Before Horse — The union charges a "cart before the horse" approach will create mass unemployment before there is enough defense work to absorb the unemployed and will take materials out of civilian production before they are needed in defense production.

The real answer, says the UAW, is to expand capacity to produce steel, aluminum and other basic materials, not to price consumers out of the market and create mass unemployment. It, of course, remains to be seen whether the credit restrictions actually will do these things. If so, then presumably the Reserve Board could revoke the restrictions and again ease consumer credit. It might be more difficult, however, for the National Production Authority to revoke an imposed cut on auto output since this involves a host of scheduling problems that can't be revised overnight.

Other manufacturers are standing pat for the present, except for the previously noted effort to expand November and December schedules. They want a clearer picture of just how sales are going to turn, and until the present confusion has cleared there is no point in making any changes.

Mercury Stands Pat on Prices

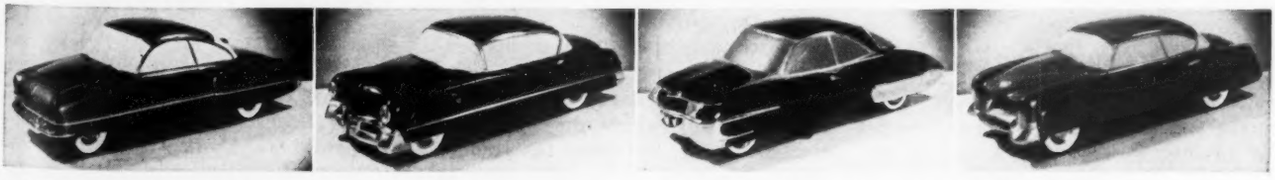
Despite a $78 million increase in its wage-salary-materials bill since the start of the Korean war, plus enormous increases incident to the start of pension plans, Ford is introducing its 1951 Mercury models at no increase in price. It is hoped this will mean a pattern which other forthcoming 1951 models will follow, although Hudson, Packard, Studebaker and Nash all were forced to boost the prices of their new models. It is reasonable to assume the 1951 Fords will follow the Mercury pattern, thus leaving it up to General Motors and Chrysler to follow suit.

Ford points out that how long price increases can be resisted depends on many things beyond its control—availability and price of basic materials, how many cars can be built, actions of employees in refraining from strikes and other interruptions to work schedules, possible wage increases due to cost-of-living adjustment provisions, possible higher taxes —to name a few. Decision to hold the price line for the present was taken as a counter-inflationary move and should prove wise at least from the public relations viewpoint.

Incidentally, the new Mercury is being backed up with the most aggressive advertising barrage in company history, with all major media—newspapers, magazines, outdoor billboards, television and radio—being put to work. Some 1650 newspapers, 5300 billboards, 35 television stations and every radio station are on the list. Sales messages are stressing particularly the new automatic transmission that Mercury is offering and which will be available later on Ford models.

Kaiser Rearranges Output

Kaiser-Frazer has moved fast in the wake of the new credit restrictions to reverse the proportions of large and small car output. Until now, schedules called for 800 Kaisers and



COMPLETE WITH FROSTING—This is what the younger generation thinks the lines of tomorrow's passenger cars may or should be. They are the four top prize-winning entries in the senior age division of the 1950 Fisher Body Craftsmen's Guild, the work of (left to right) Robert Cadaret, Los Angeles; Forbes R. Powell, Ardmore, Pa.; Albert W. Mandel, Detroit, and James Fishback, Harrisburg, Pa. Reflecting no startling originality, the designs appear to have been influenced by today's automobile styles. They have the familiar features of the "hard top" convertible, integral bumper-grilles, curved glass windshields, "double dip" fenders and gobs of chrome

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400 Henry Js per day. As soon as facilities can be rearranged, or in about a week or two, the Henry J will be increased to 800 and the Kaiser dropped to 400 daily. The change will mean some temporary layoffs, but it is figured that the market will turn naturally to lower-priced cars, because the higher monthly payments are called for. So the Henry J may become a more attractive buy.

You Owe It to the Auto Industry

C. E. Wilson, General Motors president, sees the auto industry as the leader in perfecting three important techniques that have made low-cost production possible, not only in its own plants but in other industries as well. They are: 1. progressive manufacture and assembly of accurately made interchangeable parts. That includes the development of special purpose machines and processes, and even of plants to facilitate the flow of material from the raw state to the finished product. 2. Business organization that effectively and efficiently co-ordinates effort of hundreds of thousands of people in research, engineering, purchasing, manufacturing, sales and finance, that is, a co-ordinated effort to deliver to the customer a product he would rather have than the money he has to pay for it. 3. A mass distribution system that makes possible a low merchandising cost, stimulates demand and makes available throughout the country the products of mass production. The system also promotes the initiative and welfare of tens of thousands of small business men who, as retailers, serve the customers in their communities.

Once the Rhythm Is Established

Chevrolet has manufactured close to 220,000 automatic transmissions at its new Cleveland plant and current production is pressing toward 2000 per day. Demonstrating how output moves ahead as the rhythm of production becomes established, the first 100,000 took three months and 14 days. The first transmission was assembled on Jan. 4.

From Their Advertising Budgets

Novel merchandising effort was made recently by Hudson in the form of 14-page special section in one of the local newspapers. Several pages of illustrations and text on manufacturing and assembly operations at Hudson plants were followed by similar descriptions of the manufacture of various parts and accessories in vendor's plants, including crankshafts, radiators, shock absorbers, trim moldings, spark plugs, springs and steering gears. Bill for the space was $28,000 according to reports, part of which doubtless was covered by the various suppliers who were mentioned.

Auto, Truck Output

U. S. and Canada

	1950	1949
January	$ 609,882	445,092
February	505,593	443,734
March	610,678	543,711
April	585,705	569,728
May	721,161	508,101
June	897,864	523,689
Six Months	3,941,883	3,034,055
July	746,771	604,351
August	842,304	678,092
September	744,982*	657,073
October		601,021
November		474,731
December		384,318
Total		6,533,641

Weekly Estimates

Week Ended	1950	1949
Sept. 30	187,030	151,593
Oct. 7	177,853	148,443
Oct. 14	174,234	146,566
Oct. 21	184,121	143,049
Oct. 28	186,000	137,651

Estimates by Ward's Automotive Reports

* Preliminary.

Millions for Presses

The Air Force, through the National Security Resources Board, has activated a $200 million program for 25 new hydraulic presses.

The program is based on results of the research and development program at the Air Force's manufacturing methods pilot plant at Adrian, Mich. The plant is operated by Gerity-Michigan Corp.

Mighty Hefty—Over 900 members of the Society of Automotive Engineers converged on Adrian last Monday to visit the plant and to hear an address by Lt. Gen. K. B. Wolfe, deputy chief of staff for air of the Air Materiel Command at Wright Field, Dayton, O. The S.A.E. members saw some of the heftiest hydraulic extrusion presses and heavy forging presses in the world, transferred from Germany where they were operated during the war to produce various aircraft components such as propellers, spinners, engine crankcases and the like.

At the Adrian plant 15 extrusion presses, ranging in capacity from 1650 tons to 5500 tons are installed and ready for use. Four vertical forging presses, rated at 600, 2000, 7000 and 15,000 tons, respectively, are being erected with building modifications necessary to accommodate the giants.

Sharp Contrast — The Germans built one press of 30,000-ton capacity and forged 33-foot aluminum spar caps in it. These caps originally had been produced by machining extruded sections, weighing 517 pounds before machining and 176 pounds after. By contrast only 22 pounds of metal were removed by machining from a forging weighing 198 pounds. In forging propellers, two blades were shaped integrally with the hub to an overall length of 12 feet and to such precision that only the hub required machining. Using two-cavity dies, 700 propellers were forged in an 8-hour shift. Incidentally, the Russians appropriated this giant press following the war and nothing has been heard of it since.

Jumbo Was Tiny—One of the presses in the Air Force's big program is a hydraulic job that will be rated at 75,000 tons capacity. A new plant is in the preliminary stages to house the unit. Two of the presses will be reserved for research studies, the rest are production units and will be installed at plants of various manufacturers, including Reynolds Metals, Aluminum Co. of America, Wyman-Gordon and Kaiser on the West Coast. Several press builders are co-operating in the program which was started about six months ago and will not be completed before 1952.

The huge turnout of the S.A.E. at Adrian testified to the widespread interest in advanced heavy press techniques perfected by the Germans. Ordinarily these meetings draw around 300 and the deluge of reservations confounded but nevertheless pleased the sponsors.

One beneficial result may be the injection of a little more zip in the program under way at the Adrian plant which has been lagging in many respects.

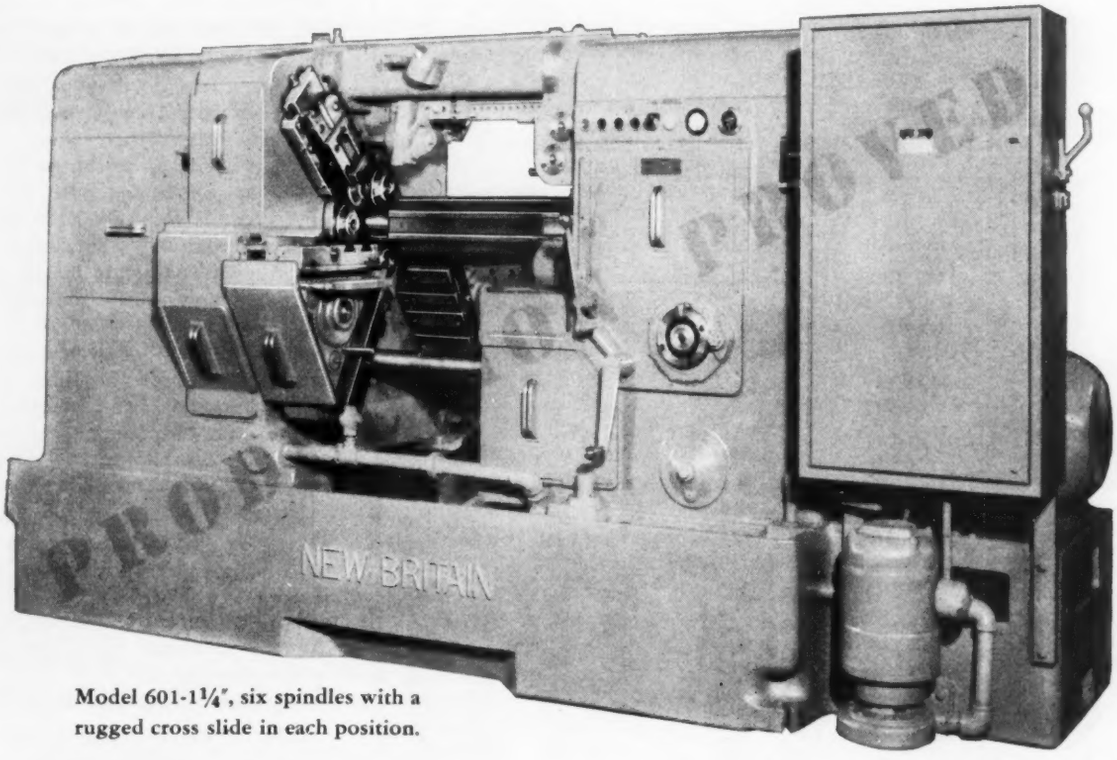
Ford Tractor Prices Go Up

Dearborn Motors Corp., Detroit, increased recommended list price last Monday on the Ford farm tractor from $1240 to $1329, f.o.b., Detroit. The raise is equivalent to 7.2 per cent. It reflects mounting costs of wages, salaries and pensions and insurance payments as well as the increased cost of materials. Aside from minor price change last June to compensate for improved instrumentation, the boost is the first increase on the tractor since July, 1948.

There's no testimonial like a re-order...

MANUFACTURERS ARE RE-ORDERING NEW BRITAIN AUTOMATICS BECAUSE THEY ARE SATISFIED WITH THE MAIN FEATURES WHICH MAKE AN AUTOMATIC PAY OFF:

- Ease and safety of operation
- Minimum down-time for repair
- Minimum down-time for set-up and change-over
- Flexibility of tooling
- Elimination of second operations



Model 601-1¼", six spindles with a rugged cross slide in each position.

NEW BRITAIN

THE NEW BRITAIN MACHINE COMPANY
NEW BRITAIN-GRIDLEY MACHINE DIVISION
NEW BRITAIN, CONNECTICUT

AUTOMATIC BAR AND CHUCKING MACHINES • PRECISION BORING MACHINES • LUCAS HORIZONTAL BORING, DRILLING AND MILLING MACHINES

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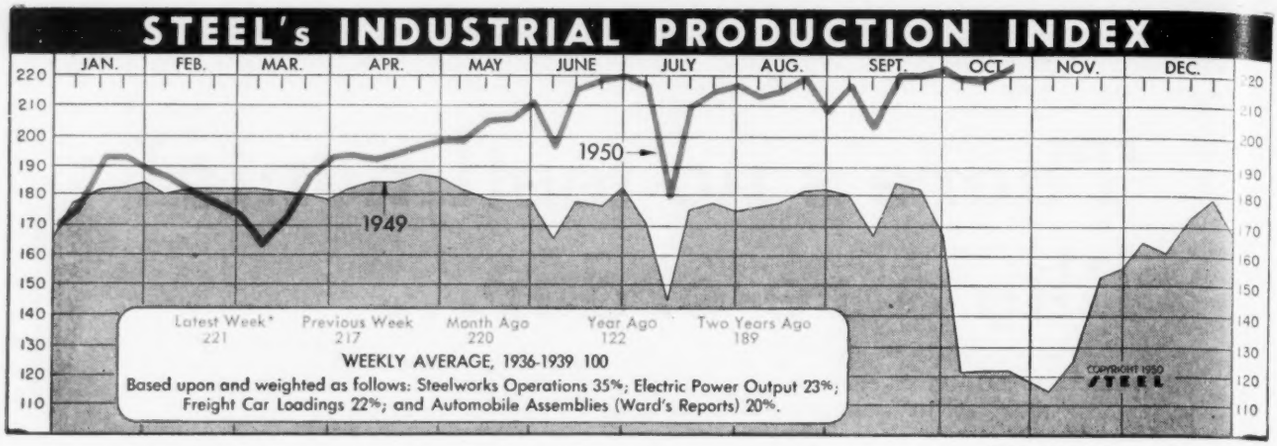
STEEL's INDUSTRIAL PRODUCTION INDEX
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
220 210 200 190 180 170 160 150 140 130 120 110
1950
1949
Latest Week* 221
Previous Week 217
Month Ago 220
Year Ago 122
Two Years Ago 189
WEEKLY AVERAGE, 1936-1939 100
Based upon and weighted as follows: Steelworks Operations 35%; Electric Power Output 23%; Freight Car Loadings 22%; and Automobile Assemblies (Ward's Reports) 20%.
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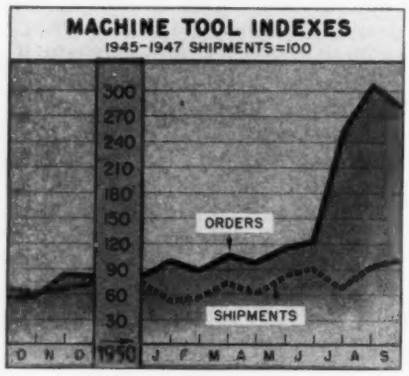
Week ended Oct. 21 (preliminary).

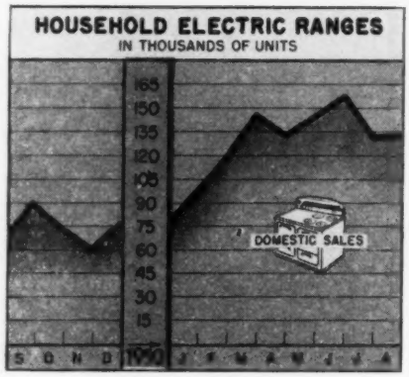


Charts—Copyright 1950, STEEL

Machine Tool Indexes

	New Orders 1950	New Orders 1949	Shipments 1950	Shipments 1949
Jan.	99.7	87.0	52.4	68.8
Feb.	89.2	80.9	56.1	70.3
Mar.	107.4	93.5	75.3	75.8
Apr.	98.9	70.1	61.6	74.7
May	116.4	63.7	82.5	72.8
June	126.2	53.6	91.9	79.0
July	253.1	48.0	68.3	60.7
Aug.	305.1	51.5	95.7	67.3
Sept.	281.7	57.7	101.5	67.6
Oct.	....	56.8	...	62.3
Nov.	....	84.3	...	67.6
Dec.	....	82.5	...	75.7

National Machine Tool Builders' Assoc.

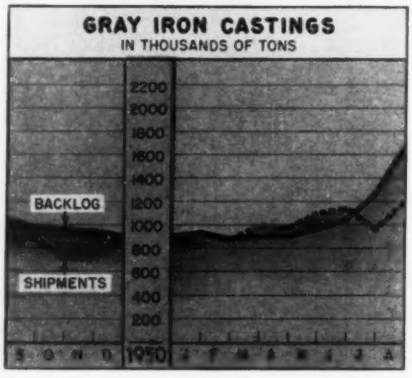


Household Electric Ranges

Sales Billed—Units

	1950	1949	1948
Jan.	97,925	106,473	103,585
Feb.	118,989	87,370	103,506
Mar.	145,417	87,543	127,461
Apr.	132,859	59,894	104,677
May	145,498	52,286	98,983
June	158,534	68,107	123,300
July	130,505	62,402	83,485
Aug.	132,243	66,222	116,107
Sept.	.....	91,073	128,829
Oct.	.....	72,672	122,516
Nov.	.....	60,523	123,661
Dec.	.....	77,011	105,387
Total	.....	903,806	1,341,497

National Electrical Mfrs. Assoc.


GRAY IRON CASTINGS
IN THOUSANDS OF TONS
2200 2000 1800 1600 1400 1200 1000 800 600 400 200
BACKLOG
SHIPMENTS
S O N D 1950 J F M A M J J A

Gray Iron Castings

Thousands of Net Tons

	Shipments 1950	Shipments 1949	Backlogs* 1950	Backlogs* 1949
Jan.	913	1,040	914	2,065
Feb.	864	987	873	1,857
Mar.	996	1,075	922	1,639
Apr.	981	929	922	1,446
May	1,095	867	978	1,243
June	1,136	906	1,040	1,087
July	961	697	1,287	1,032
Aug.	1,202	872	1,670	1,048
Sept.	...	881	...	980
Oct.	...	716	...	955
Nov.	...	719	...	939
Dec.	...	862	...	892
Total	...	10,551		

* For sale. Bureau of the Census

Issue Dates of Other FACTS and FIGURES Published by STEEL:

Construction Oct.23	Furnaces, W. Air ..Oct.16	Ranges, Gas Oct.2
Durable Goods Sept.25	Gear Sales Oct.16	Refrigerators Oct.23
Employ., Metalwkg..Oct.23	Indus. Prod. Oct.9	Steel Cast. Oct.23
Employ., Steel Oct.23	Ironers Sept.25	Trucks, Elec. Ind. ..Jan.2
Fab. Struc. Steel...Oct.9	Price Indexes Oct.2	Vacuum Cleaners....Oct.2
Foundry Equip. Oct.9	Pump Orders Oct.16	Wages, Metalwkg...Oct.23
Freight Cars Oct.16	Purchasing Power ..Oct.2	Washers Oct.9
Furnaces, Indus. ..Oct.16	Radio, TV Aug.14	Water Heaters Oct.16

Tool Buying at High Rate

New orders for machine tools continued to be placed at a high rate in September but didn't quite reach the August total. The National Machine Tool Builders' Association's new orders index for the latest month was 281.6 compared with 305.1 in August and 57.7 in September, 1949. Foreign orders included in the new orders total were 27 in September, off from 34.2 in August but almost double last September's 13.7.

With orders flooding in and backlogs mounting rapidly, machine tool builders pushed their shipments up another notch to an index figure of 101.5 in September. It was the highest shipments rate since January, 1946, and almost 6 points higher than the August shipments figure of 95.7. In September, 1949, the shipments index was 67.6.

Ratio of unfilled orders to shipments continued to climb as new orders outstripped shipments last month. The September ratio at 9.8 to 1 was the highest since the war years. A year earlier it was 3.7 to 1.

Association's indexes are based on average monthly shipments in 1945-1947 equaling 100. Average annual shipments in the base period were $355 million.

Gray Iron Shipments Record

Both shipments and backlogs of gray iron castings moved up in August, the Census Bureau reports. Backlogs at the end of August were 1,670,380 tons, the highest total since February, 1949. Shipments climbed to 1,201,569 tons in August from 961,450 in July and are the highest ever reported by the Census Bureau in any month, war or peace. Total shipments in the first eight months this year were 8,148,677 tons. In the like period a year ago the total was 7,372,077 tons.

The Business Trend

Production index attains alltime high in latest week but concern is expresed about the future for industries affected by credit curbs

CONCERN about the effects of tighter consumer credit regulations on business and employment is being voiced in greater volume. Automobiles, appliances and housing are the principal areas affected and there is some belief these industries will be hit unnecessarily hard.

There is a strong possibility of some modification in housing credit. Should housing starts fall too far then some reshuffling to benefit lower cost housing is better than an even bet.

So far there has been no good indication as to what the effects will be on auto and appliance sales although it is taken for granted that some cutback is inevitable. Not many of the buying public feel any pity for automobile dealers, and television, the "hottest" appliance item, is cooled considerably by the controversy over color.

It will take a little while before credit controls and NPA directives bring about shifts in output. In the week ended Oct. 21 STEEL's industrial production index advanced 4 points and reached an alltime high of 221 per cent (preliminary) of the 1936-1939 average. Gains in steelmaking and automotive assemblies were responsible for the push to a new high.

More and More Steel . . .

Last week another production record was posted by the nation's steelmakers. The record of 1,967,300 net tons produced in the week ended Oct. 21 with mills operating at 102 per cent of capacity lasted just one week.

President Benjamin F. Fairless says U. S. Steel Corp. plants are operating at 102 per cent of rated capacity. He told a group in San Francisco that U. S. Steel's expansion plans will be announced in detail in the near future and intimated that sizable expansion for the corporation's West Coast subsidiary is included in these plans. Benefits of the large steel expansions will fan out to many metalworking companies. Cutler-Hammer Inc., for example, expects to do a large volume of electric controller business as part of these expansions.

Autos in Parts Pinch . . .

Every week some major passenger car builder has parts trouble with the result that assemblies suffer. Although passenger car and truck outturn moved up to 184,121 units in the week ended Oct. 21 from 174,234 in the preceding week, Studebaker and Kaiser-Frazer lost ground because of parts deficiencies. A 16 per cent cutback in the use of new rubber in civilian products ordered by NPA may mean the auto industry will again ship new cars without the spare tire. Automakers also wonder whether it is the forerunner of other orders that will further cut into their assemblies.

Heavy Construction Rebounds . . .

Engineering construction contracts moved up to $260.8 million in the week ended Oct. 19, an unseasonally

BAROMETERS of BUSINESS

		LATEST PERIOD*	PRIOR WEEK	MONTH AGO	YEAR AGO
INDUSTRY	Steel Ingot Output (per cent of capacity)†	102.0	101.5	101.0	9.5
	Electric Power Distributed (million kilowatt hours)	6,503	6,509	6,457	5,430
	Bituminous Coal Production (daily av.—1000 tons)	1,917	1,902	1,883	386
	Petroleum Production (daily av.—1000 bbl)	5,902	5,862	5,894	5,072
	Construction Volume (ENR—Unit $1,000,000)	$260.8	$156.7	$238.9	$121.5
	Automobile and Truck Output (Ward's—number units)	184,121	174,234	188,451	143,049
	*Dates on request. †1950 weekly capacity is 1,928,721 net tons. 1949 weekly capacity was 1,843,516 net tons.				
TRADE	Freight Car Loadings (unit—1000 cars)	880†	889	870	589
	Business Failures (Dun & Bradstreet, number)	165	188	155	181
	Money in Circulation (in millions of dollars)‡	$27,228	$27,339	$27,081	$27,427
	Department Store Sales (changes from like wk. a yr. ago)‡	+11%	+9%	+17%	−12%
	†Preliminary. ‡Federal Reserve Board.				
FINANCE	Bank Clearings (Dun & Bradstreet—millions)	$15,431	$14,889	$18,555	$15,216
	Federal Gross Debt (billions)	$256.7	$256.5	$256.8	$256.6
	Bond Volume, NYSE (millions)	$17.7	$15.6	$20.4	$15.9
	Stocks Sales, NYSE (thousands of shares)	10,883	9,259	9,901	6,628
	Loans and Investments (billions)†	$68.7	$68.7	$68.9	$66.2
	United States Gov't. Obligations Held (millions)†	$33,358	$33,694	$34,840	$37,300
	†Member banks, Federal Reserve System.				
PRICES	STEEL's Weighted Finished Steel Price Index††	157.62	157.29	156.99	152.52
	STEEL's Nonferrous Metal Price Index‡	226.5	225.5	217.2	169.1
	All Commodities†	168.7	168.4	169.8	151.9
	Metals and Metal Products†	177.8	177.5	176.0	167.3
	†Bureau of Labor Statistics Index, 1926=100. ‡1936-1939 =100. ††1935-1939=100.				

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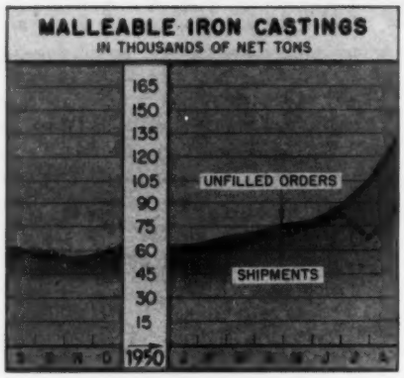
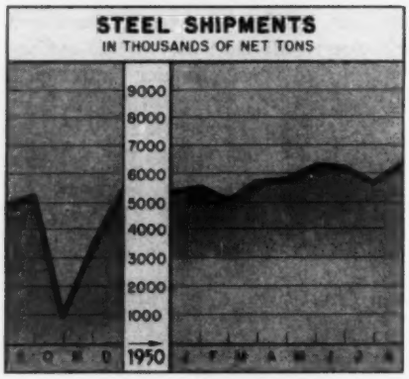


Malleable Iron Castings

Thousands of Net Tons

	Shipments		Unfilled Orders	
	1950	1949	1950	1949
Jan.	62.9	71.9	62	126
Feb.	60.4	66.7	67	118
Mar.	66.3	72.1	70	102
Apr.	69.8	61.3	76	95
May	76.2	54.6	77	79
June	82.3	59.6	87	70
July	67.5	44.4	105	71
Aug.	86.0	58.1	132	61
Sept.	...	60.5	..	58
Oct.	...	57.2	..	54
Nov.	...	49.4	..	56
Dec.	...	57.4	..	61
Total	...	713.1		

* For Sale. Bureau of the Census

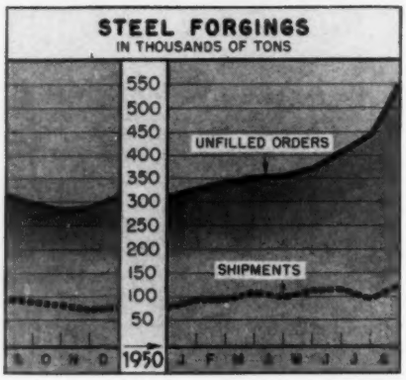


Steel Shipments

Net Tons

	1950	1949	1948
Jan.	5,482,691	5,788,632	5,410,438
Feb.	5,134,780	5,519,938	5,046,115
Mar.	5,723,340	6,305,681	5,978,551
Apr.	5,780,453	5,596,786	5,096,161
May	6,252,672	5,234,862	5,321,375
June	6,192,438	5,177,259	5,476,774
July	5,668,898	4,534,855	5,229,880
Aug.	6,326,464	4,918,314	5,329,060
Sept.	.....	5,236,196	5,511,474
Oct.	.....	935,037	5,952,008
Nov.	.....	3,296,809	5,732,256
Dec.	.....	5,410,902	6,056,282

American Iron & Steel Institute



Steel Forgings

Thousands of Tons

	Shipments		Unfilled Orders*	
	1950	1949	1950	1949
Jan.	93	124	327	571
Feb.	93	111	341	540
Mar.	109	120	350	503
Apr.	99	104	357	465
May	114	92	373	412
June	117	101	408	377
July	95	70	446	348
Aug.	124	96	548	312
Sept.	..	88	...	294
Oct.	..	81	...	280
Nov.	..	73	...	287
Dec.	..	78	...	308

* For Sale. Bureau of the Census.

Charts—Copyright, 1950, STEEL

high figure 115 per cent above the like week in 1949 and 66 per cent above the low for this year posted in the preceding week. One project, the 1267-mile pipeline for the Texas-Illinois Gas Pipeline Co. valued at nearly $99 million, was the springboard for the increase. Total for the first 42 weeks this year is up to $9670 million and is 47 per cent above the same period a year ago. Private contracts are up 83 per cent to $5655 million and public contracts are up 16 per cent to $4015 million. The National Constructors Association, whose membership consists largely of companies engaged in erection of oil refineries, steel mills and chemical plants, says the industry has experienced a general tightening of the labor supply and new demands for higher wages since the Korean war began.

Carloadings Climb . . .

Freight carloadings are higher than they have been in two years. In the week ended Oct. 14 loading of revenue freight totaled 888,559 cars, highest since the last week in October, 1948. In the like week of 1949 carloadings totaled 583,913 cars.

Truckers Haul More . . .

Motor carriers, too, are keeping busy. American Trucking Associations says that volume of motor freight transported by motor carriers in August was up 19.7 per cent over July and 35.8 per cent over August, 1949 Carriers reporting to the association hauled 4,813,182 tons in August. Carriers of iron and steel hauled about 7 per cent of the total tonnage.

Farm Equipment Eases

Material and labor supply plus military needs will determine industry's output in 1951

SCARE buying in farm equipment ended as suddenly as it began, says John L. McCaffrey, president of International Harvester Co., Chicago. He told the Farm Equipment Institute that business has turned downward—not into a slump but to level off on a somewhat lower plateau.

Looking ahead, he says, that if farm equipment makers were able to get all the materials they need, the total business in 1951 should be about the same as this year. But, Mr. McCaffrey adds, he doesn't expect the industry will be able to get the materials it wants and needs so production will be down somewhat next year. "How much below I do not know," he says, "for that depends on the materials available, the manpower available and the degree to which our production facilities may be diverted to defense work."

Next year will see intense competition in farm equipment, he believes, no matter if production is reduced by as much as 15 to 20 per cent. The scare buying period is over as far as the farmer is concerned and he will buy what is needed to make his operations efficient according to his own standards. Additional equipment will be purchased only when the farmer is convinced it is advantageous to do so, Mr. McCaffrey concludes.

Sharp Upturn for Case

Sales for J. I. Case Co., Racine, Wis., took a sharp upturn since the start of the Korean war and changed its earnings picture markedly. The result is that the fiscal year ended Oct. 31 should be a big one, the second best in history.

In the first half of the company's fiscal year sales were 45 per cent under a year ago. Since Aug. 1 they have run about 50 per cent ahead of the corresponding period last year. A large inventory at the outbreak of hostilities has fed the increased demand in recent months.

An estimate of earnings in the first three quarters is that they were down 40 per cent from a year earlier. But in the last quarter earnings were equal to the total for the first three quarters.

The farm machinery manufacturing firm will pay a bonus of 3 to 6 per cent of annual earnings to about 12,000 employees on Dec. 4, President Theodore Johnson says. Bonus will be based on years of service and will be

paid to all who have completed the probationary period with the company. Employees who entered military service during the fiscal year will be eligible.

Radio and TV Prices Higher

Television and Radio Division, Westinghouse Electric Corp., Sunbury, Pa., increased prices ranging from $10 to $35 on seven television receivers and $1 to $2 on three table radio models. J. F. Walsh, division sales manager, says the price adjustments resulted from increased costs of components and cabinets.

Piston Ring Orders Soar

Locomotive packing and marine piston ring orders booked by Hunt-Spiller Mfg. Corp., Boston, in September were up 334 per cent compared with the same month last year. Sales that month also were the highest for any month since March, 1945, F. W. Lampton, vice president reports.

Ring order bookings by the company in the first nine months this year topped the total entered in all 1949 by 14 per cent.

Record Sales, Earnings for GE

General Electric Co.'s consolidated sales and net earnings for the first nine months were both at record levels for the period, says President Charles E. Wilson. Net sales billed totaled $1,354,483,215, or 14 per cent more than in the same period a year ago. Net earnings amounted to $112,919,454, or 67 per cent higher than in the corresponding months in 1949.

Net sales billed in the third quarter totaled $473.4 million, compared with $388.6 million in the third quarter last year. Earnings in the third quarter at $35.4 million were considerably above the $21.1 million net for the same three months a year ago.

Acme's Military Orders Bigger

Carl J. Sharp, president, Acme Steel Co., Chicago, told stockholders that demand continues to exceed production and "allocations are being made in such manner as to be fair to all customers." Orders for military requirements are taking a greater share of Acme's capacity, leaving less steel for distribution to regular customers.

Sales in the third quarter were off slightly to $16.2 million from $16.5 million in the second quarter but Mr. Sharp explains that because of a two-week mill shutdown for vacations in July sales are about $1,250,000 less than normal. Sales for the first three quarters total $47.7 million, compared with $41.4 million in the same months a year ago.

Weekly Earnings Move Up

Factory production workers getting nearly $5 per week more than a year ago

WEEKLY earnings for production workers in manufacturing establishments moved up to another record in September and will probably be even higher in October when the effect of more wage increases makes itself felt. Gross hourly earnings for all manufacturing industries increased by almost 2 cents from mid-August to mid-September, the Bureau of Labor Statistics reports, but average weekly hours turned downward slightly to 40.9 from the August peak of 41.2.

As shown in the accompanying chart, weekly earnings for factory employees have moved up steadily since the end of the war. All figures are for September in the respective years. Weekly earnings a month ago were almost $20 higher than they were in the first postwar month. Additional expenditures by manufacturers in the form of pension and insurance benefits are not included in these figures.

Getting Isn't Keeping—Not all the increase shown in the BLS totals can be considered gravy. There are higher taxes, larger social security deductions and a higher cost of living that cut into the total. Still the latest weekly wage figure is nearly 50 per cent higher than it was at the end of World War II and this increase is higher than the corresponding rise in the bureau's consumers' price index.

Combined effects of a longer average work-week, higher wage rates and a relatively larger gain in the higher paying durable goods industries than in others pushed weekly earnings in this September almost $5 higher than for the corresponding period a year ago.

You're Paying More—Production workers in durable goods industries are getting more pay per week than the manufacturing average, and four out of five leading metalworking classifications are above the average for all durables. The average weekly pay for all durable goods industries was $64.90 in September. That same month production workers earnings in the principal metalworking classifications were: Primary metals, $69.64; fabricated metal products, $65.95; machinery (except electrical), $69.15; electrical machinery $61.49; transportation equipment, $70.65.

Hours worked per week in the durable goods industries were off slightly to 41.6 hours from August's postwar high of 41.8 hours but were above the manufacturing average.

Unemployment Payments Drop

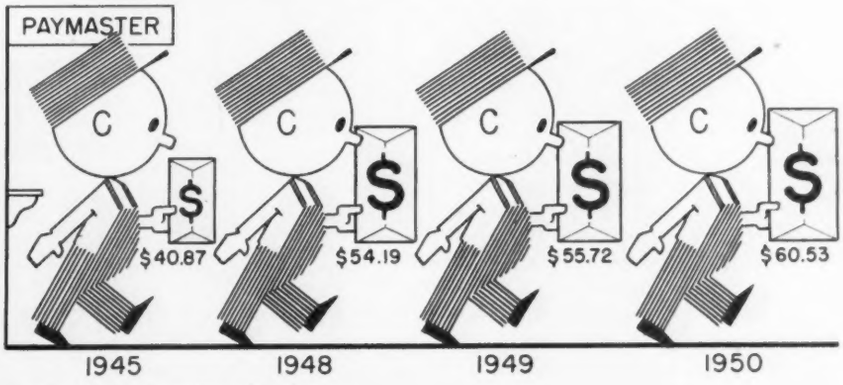
Lowest level of unemployment in two years was recorded in September. Insured unemployment among the 33 million workers covered by state unemployment insurance laws dropped to 2.9 per cent, the Labor Department's Bureau of Unemployment Security reports, best mark since the 2.6 per cent posted in September, 1949. Insured unemployment was 7.3 per cent in January and 3.5 per cent in August.

Unemployment insurance benefits paid by state agencies continued to decline. September's total was $64,458,000 paid to 805,900 claimants. It was the lowest disbursement since November, 1948. The largest amount paid in any month this year was $187 million in March.

The nation's public employment service made 1,726,700 nonfarm job placements in the three-month period ended Sept. 30, an increase of 33.5 per cent over the like 1949 quarter.

Fatter Pay Envelopes for Factory Workers

. . . weekly wages up almost 50 per cent in five years



Figures are for September of each year.

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Men of Industry

L. O. McLEAN
. . . sales dev., Osgood and General Excavator

JAMES S. FORTINER
. . . sales mgr., Osgood and General Excavator

Osgood Co. and **General Excavator Co.**, Marion, O., have combined their sales management and policies in connection with distribution of products, and appointed **L. O. McLean** director of sales development, and **James S. Fortiner** as sales manager for the combined office. **Kenneth O. Williamson** was appointed assistant sales manager. This consolidation affects only the sales efforts, with other functions carried on by the individual companies as heretofore. **George Day**, former sales manager at Osgood, has retired after spending 45 years in the power shovel industry, 30 of which were with Osgood.

Joseph J. Jeffrey was appointed vice president in charge of personnel for **Great Lakes Steel Corp.**, Detroit.

George P. Maurer, W. Stephen Richardson and **Edward J. Wellauer** received promotions in the engineering department, **Falk Corp.**, Milwaukee. Mr. Maurer was named assistant chief engineer, gear technology; Mr. Richardson is the new assistant chief engineer, applications and special products; and Mr. Wellauer was appointed assistant chief engineer, materials and research.

In reorganization of **Walker Mfg. & Sales Corp.**, St. Joseph, Mo., **M. O. Land** was elected president; **W. J. Barnes**, vice president; **R. L. Douglas**, secretary; and **Lakin Meade**, treasurer. Upon the death of **R. A. Walker** in June of this year, Mr. Land and his associates purchased the entire interests of the company and now operate as sole owners and successors of Walker Mfg. Co. Mr. Land previously served as president from the founding of the company in 1932 until 1938. From that time until his recent re-election he was treasurer of the firm.

Charles R. Schmitt was appointed superintendent, hot strip mill, Midland Works, **Crucible Steel Co. of America**, Pittsburgh. He succeeds **A. J. Malone**, resigned to take a position with another company. **Stephen M. Trbovich** was appointed assistant superintendent, hot strip mill.

M. E. Puyans and **Richard McAvoy** were elected vice presidents, **Great Lakes Carbon Corp.**, New York. In addition to their new responsibilities they continue as treasurer and general counsel, respectively. **W. O. Ashe Jr.** and **J. W. Meader** were elected assistant treasurers. Additionally Mr. Ashe continues as credit manager and Mr. Meader as economist.

John E. Stevens Jr. was appointed assistant to the president, **Edward Valves Inc.**, East Chicago, Ind. He was vice president, Bergen Genspring Corp., New York, and previous to that was assistant manager of engineering, M. W. Kellogg Co., and in sales engineering with Eagle-Picher Co. and Sarco Co. Inc.

Horace Y. Bassett was elected to the board of directors, **Calumet & Hecla Consolidated Copper Co.**, Boston, to fill the vacancy resulting from the death of **Dudley S. Dean.** Mr. Bassett became associated with the Wolverine Tube Co., Detroit, in 1939 as quality manager. When Calumet & Hecla acquired the business of this company in 1942 he was factory manager. In 1944 he became general manager, Wolverine Tube Division, and in 1948 was elected a vice president of the company.

Frederick R. Cronmiller was appointed supervisor of budgets and planning, chemical department, Pittsfield, Mass., **General Electric Co. Edgar A. Reiss** was named manager of manufacturing for the wire and cable division, Bridgeport, Conn. **A. V. Feigenbaum** was appointed to the staff of **C. W. LaPierre**, manager of GE's aircraft gas turbine divisions, Lynn, Mass., and will also be connected with quality control activities for the company as a whole. He is succeeded by **B. R. Zimber** as supervisor of training, apparatus department.

Standard Products Co., Cleveland, promoted **R. G. Burnham** to director of purchases. He will co-ordinate purchases and purchasing policies of the company's six manufacturing divisions. Mr. Burnham is a former director of purchases for National Screw & Mfg. Co., and later was vice

JOHN E. STEVENS Jr.
. . . asst. to president, Edward Valves

R. G. BURNHAM
. . . directs purchases at Standard Products

Tops FOR DESK TOP ASSEMBLY

says GENERAL FIREPROOFING

World-Renowned Manufacturer of Metal Business Furniture

Tests prove that SPEED NUTS® produce an assembly savings of 40% over other fastening methods. That's the report supplied by General Fireproofing engineers after analyzing various methods of attaching Mode-Maker* desk tops to pedestals.

For faster, easier, vibration-proof attachments, SPEED NUTS were proved definitely superior. On the basis of these recent tests, GF plans to increase their use of SPEED NUTS to millions more per year.

*T. M. Reg. U. S. Pat. Off.

Join the thousands of manufacturers who are converting costs to profits by specifying SPEED NUT brand fasteners. A thorough Tinnerman Fastening Analysis is the first step. Ask your Tinnerman representative for details.

Write for your copy of the "Savings Stories" booklet of actual case histories. TINNERMAN PRODUCTS, INC., Cleveland, Ohio. In Canada: Dominion Fasteners Ltd., Hamilton. In England: Simmonds Aerocessories, Ltd., Treforest, Wales.

New GF Mode-Maker Desk
Flat Type SPEED NUTS attach desk to pedestal. Reaching inside pedestal, assembler uses finger pressure to position and hold SPEED NUT, then drives screw with power screwdriver. Provides speedy, vibration-proof attachment.
Self-retaining "U" Type SPEED NUTS secure dust hood to desk top (see diagram).
TINNERMAN Speed Nuts

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president, American Rivet & Mfg. Co., which he still serves as a director.

Robert B. Eastty was appointed general sales manager, **Reliance Steel**

ROBERT B. EASTTY
. . . general sales mgr., Reliance Steel

Products Co., McKeesport, Pa. He will be in charge of open grid steel bridge flooring and walkways, plate products and structural steel items. He formerly was sales manager, American Abrasive Metals Co., Irvington, N. J.

Dr. Franklin Strain was appointed acting director of research in charge of **Columbia Chemical Division Laboratories,** Barberton, O., for Pittsburgh Plate Glass Co. Associated with the company's chemical operation since 1937, Dr. Strain served as assistant director of research for the last eight years.

Fred J. Walters, vice president, **Hotpoint Inc.,** Chicago, was named defense co-ordinator for the company. **Edward R. Taylor,** sales manager, was promoted to general sales manager, and is succeeded by **John F. McDaniel,** previously assistant sales manager.

Reid-Avery Co. Inc., Dundalk, Baltimore, elected the following officers: **Marshall E. Reid,** chairman; **C. L. Virden,** president; **L. H. Christensen,** executive vice president; **J. M. Sawhill,** vice president-engineering; and **G. E. Claussen,** vice president-research and development.

R. H. Weigel joined **National Radiator Co.,** Johnstown, Pa., as a senior research engineer.

J. M. Wallace was appointed manager, switchgear distribution apparatus department, **Westinghouse Electric Corp.,** Pittsburgh. He is succeeded as engineering manager of the department by **H. H. Fahnoe,** formerly in charge of engineering development on fuses, cutouts and reclosers.

William W. Monahan was appointed vice president in charge of industrial relations, **Kaiser-Frazer Corp.,** Willow Run, Mich. He succeeds **Robert A. Graney,** resigned to open his own industrial relations consulting agency in Pasadena, Calif. He will be retained by Kaiser-Frazer Corp. in that capacity.

Wheeling Steel Corp., Wheeling, W. Va., appointed **J. A. Holloway** as assistant manager, tin plate sales division. He succeeds the late **S. J. Ryan. R. L. Fleming** will be in charge of cut nail sales.

Harold K. Beck was appointed commercial vice president, **Worthington Pump & Machinery Corp.,** Harrison,

HAROLD K. BECK
. . . commercial V. P., Worthington Pump

N. J., and in addition continues as manager of the Washington office.

John Hellstrom, vice president, **American Air Filter Co. Inc.,** Louisville, moves to San Francisco Nov. 1 to be manager of the newly created Pacific division. He will supervise activities of both American Air Filter and its Herman Nelson Division of Moline, Ill., in the Pacific territory. One of his assistants will be **Robert H. Walpole Jr.** who for the last four years has been engineering supervisor of the company's dust and fume control division with headquarters in San Carlos, Calif.

Howard N. Bosworth is president of the newly formed **Bosworth Steel Treating Co.,** with plant facilities at West Chicago boulevard and Southfield road, Detroit. Formerly vice president and general manager, Vincent Steel Process Co., Detroit, he has been active in the heat treating and metallurgical field for the last 26 years. **James D. Thompson,** formerly secretary and general manager, Standard Steel Treating Co., is vice president and treasurer of the new company.

J. W. Green was appointed to the newly created position of assistant manager, valve and fitting department, **Crane Co.,** Chicago. He was sales manager, New York branch.

Elmer E. Kohl was appointed general service manager, **Oldsmobile Division,** General Motors Corp., at Lansing, Mich. He succeeds **Harry R. Ekblade,** who will undertake special assignments from the home office.

American Welding Society, New York, elected **H. W. Pierce** as president for the coming year. Mr. Pierce, assistant to the president, New York Shipbuilding Corp., Camden, N. J., assumed office at the close of the society's annual meeting last week, held in Chicago. **Charles H. Jennings,** engineering manager, welding department, Westinghouse Electric Corp., was elected first vice president, and also was selected as the 1950 Adams Lecturer. **Fred L. Plummer,** director of engineering, Hammond Iron Works, was elected second vice president.

Howard L. Spindler, manager of advertising and sales promotion, **American Radiator & Standard Sanitary Corp.,** Pittsburgh, was named director of public relations. **Robert W. Lear** was promoted to manager of advertising and sales promotion.

W. G. Tunis was named operating

W. G. TUNIS
. . . Chrysler's Indianapolis plant manager

manager, **Chrysler Corp.,** at its new Indianapolis plant. Associated with Dodge and Chrysler for the last 35 years, he has been factory manager of Chrysler's parts manufacturing

plant in Kokomo, Ind., since 1937. Fred **E. Parker** was appointed factory manager of the Kokomo plant.

James F. Brehm was elected president, **Frederick Hart & Co. Inc.,** Poughkeepsie, N. Y., affiliate of ATF Inc. He joined the Hart company in 1949 as vice president and later was also appointed general manager and treasurer.

Hobart A. Green was named president, **Royal Metal Mfg. Co.,** Chicago. He succeeds the late **Irving Grombacher.** Mr. Green joined the company in 1926 as sales manager, and has been vice president for the last three years.

Synthane Corp., Oaks, Pa., appointed **Charles H. Cox Jr.** purchasing agent to succeed **S. M. Fox,** retired.

Alfred T. Duff was appointed tin mill division superintendent, Gary, Ind., sheet and tin mill, **Carnegie-Illinois Steel Corp.,** U. S. Steel subsidiary. He succeeds **Thomas W. Hunter,** named assistant general superintendent of Carnegie-Illinois' Irvin Works, Dravosburg, Pa.

Osborne Bezanson, vice president and a member of the executive committee, Monsanto Chemical Co., St. Louis, will become president and a member of the board of directors, **Chemstrand Corp.,** effective Nov. 15. He will succeed **Dr. Carroll A. Hochwalt,** who remains as a director. Mr. Bezanson will resign from Monsanto to accept the new position with Chemstrand, a corporation jointly owned by American Viscose Corp. and Monsanto. **Harry L. Dalton,** vice president, American Viscose, also was elected to Chemstrand's board of directors.

Willard F. Rockwell, chairman of the board, Rockwell Mfg. Co., was elected to the board of directors of **E. W. Bliss Co.,** Canton, O. He succeeds his brother, **Walter Rockwell,** president, Timken-Detroit Axle Co., who resigned from the Bliss board.

T. M. EVANS

Elected president, Connors Steel Co. Inc. Noted in Steel, Oct. 23 issue, p. 60

C. R. DOBSON

Vice president and chairman, exec. com. at Connors. Steel, Oct. 23 issue, p. 60

Ralph S. Euler was elected to the board of directors, **Allegheny Ludlum Steel Corp.,** Pittsburgh, to succeed the late **William F. Detwiler.**

Hanson-Van Winkle-Munning Co., Matawan, N. J., appointed **Gerhard E. Verstegen** to its staff of equipment sales engineers. He will specialize on full and semi-automatic conveyors, with headquarters in Chicago.

George Carlson was appointed manager, New Kensington, Pa., works, conduits products division, **General Electric Co.** He also continues as manager of manufacturing for the division. **R. D. Van Norstrand,** designing engineer in the Schenectady, N. Y., industrial heating engineering division, is retiring after 37 years of service.

Carlton R. Becker was appointed western factory representative for **Morse Chain Co.,** Detroit, division of Borg-Warner Corp. Mr. Becker formerly was associated with J. W. Minder Chain & Gear Co., Los Angeles, a Morse Chain distributor.

Donald B. Olen was appointed to the newly created position of works manager, **Four Wheel Drive Auto Co.,** Milwaukee. Previously director of engineering, Mr. Olen will combine engineering and manufacturing supervision in his new position.

Cleveland Automatic Machine Co., Cleveland, appointed **Herbert W. Roushkolb** as Detroit district manager.

Dresser Mfg. Division, Dresser Industries Inc., Bradford, Pa., appointed **Walter C. Bladin** sales representative for the Chicago area to specialize in the sale of rolled rings, cylinders and weldments.

Nichols Wire & Aluminum Co., Davenport, Iowa, appointed **W. F. Boore** as credit manager. He had been with Pittsburgh Steel Co. many years prior to retirement from that company in June.

Robert F. Moody was appointed assistant sales manager in the eastern division of **Hyster Co.,** Portland, Oreg.

OBITUARIES...

J. F. Roche, 76, chairman of the board, **Binks Mfg. Co.,** Chicago, died Oct. 15. He joined the company in 1929 as executive vice president and a director. In 1936 he was elected president, and in 1949 became chairman. Mr. Roche started his business career in 1900 with Montana Power Co. He later was assistant to the president of Hotpoint Inc., and following that was vice president, Apex Electric Distributing Co.

Charles R. McKinley, 60, district sales manager in Cleveland for **Chromium Corp. of America,** died Oct. 16 of a heart attack. He had been with the company for 20 years.

James P. Davis, 63, manager, magnet wire sales in Chicago for **Anaconda Wire & Cable Co.,** died Oct. 18.

Carl Wegner, 78, traffic manager, **Galland-Henning Mfg. Co.,** Milwaukee, died Oct. 18 after suffering a stroke about two weeks earlier.

Sol H. Schachtel, 65, for the last year an executive with **Luria Bros & Co. Inc.** in Cleveland, died Oct. 22 of a heart attack. From 1934 to 1949 he was affiliated with Philip Frieder Co.

Dr. Robert E. Doherty, 65, who retired in July as president, **Carnegie Institute of Technology,** Pittsburgh, died Oct. 19 in Scotia, N. Y.

Arthur S. Lutz, 56, president, **Local Steel & Supply Co.,** Mineola, N. Y., died Oct. 21.

John F. Chambers, 64, founder and president, **Chambers Gasket & Mfg. Co.,** Chicago, died Oct. 17.

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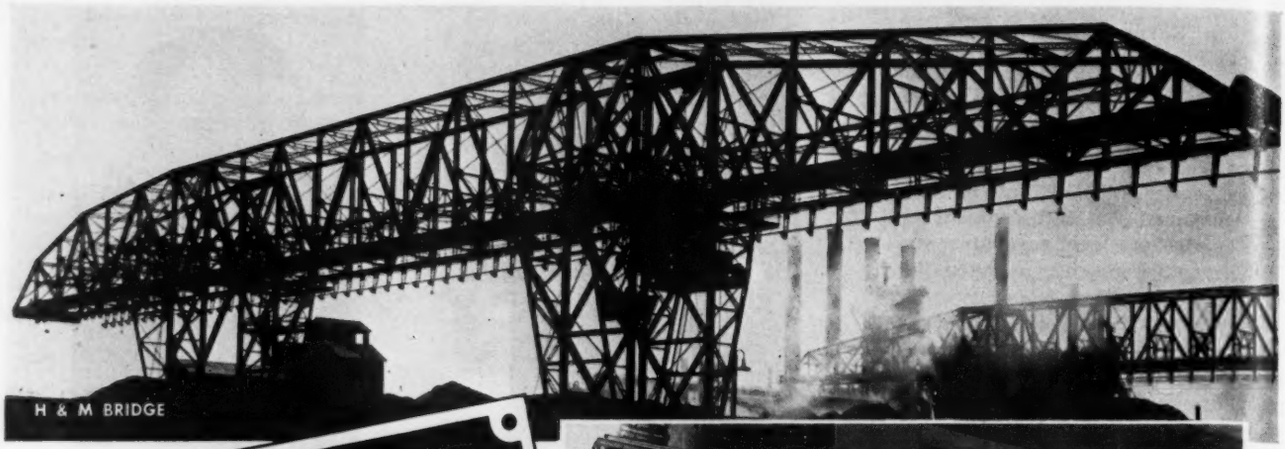


H & M BRIDGE

EC&M TIME-CURRENT CONTROL

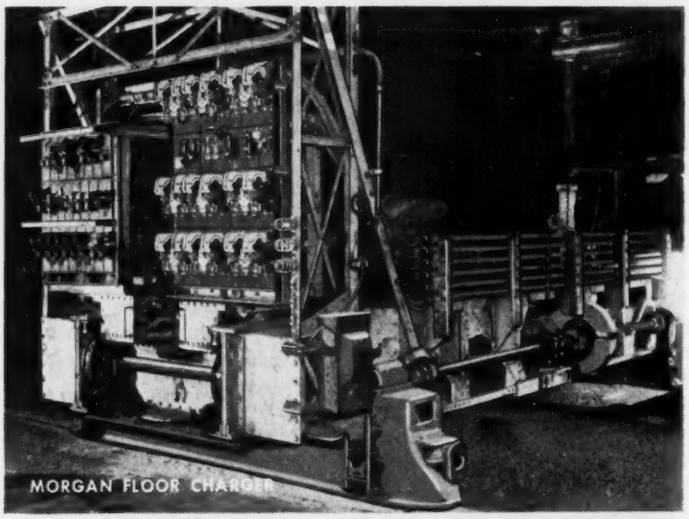
HAS OUTSTANDING ADVANTAGES FOR CRANES, CHARGERS, BRIDGES

There is no performance equal to that provided by an EC&M Bulletin 921 Crane Controller. Contactors are fast-operating — acceleration is by the TIME-CURRENT method. This gives *load-responsive* characteristics which *operators use to advantage* in spotting a load, in taking the swing out of the hook, etc.

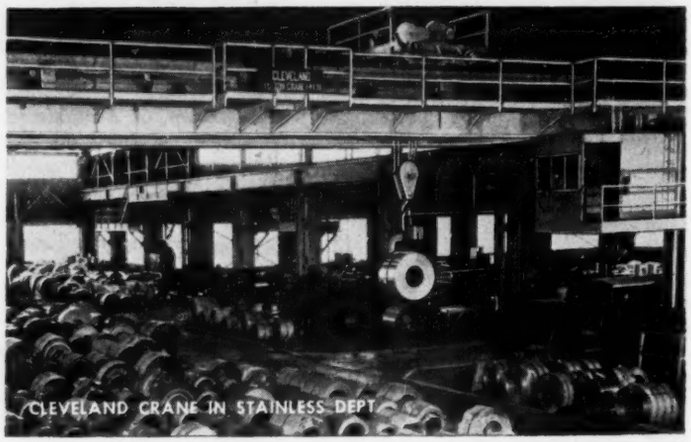
Parts easily accessible encourage good maintenance and here, again, EC&M excels. Front and rear contacts of LINE-ARC Contactors are replaceable on an average of less than 2 minutes. They can be loosened or tightened by a standard wrench and without dismantling any other contactor parts.

When buying cranes and similar machines, specify EC&M Control.

ALLIANCE OVERHEAD CHARGER



MORGAN FLOOR CHARGER



CLEVELAND CRANE IN STAINLESS DEPT.

Production AND Engineering
NEWS AT A GLANCE

NEW SYSTEM DOUBLES FINISH LIFE— Finish life on Westinghouse pole-type distribution transformers is more than doubled by a three-coat, mica-base paint system developed by the company (p. 56). Applied in the same manner as standard finishes and baked on, each coat functions co-operatively with the others to withstand oxygen, acids, salts and alkalis found in the many atmospheres across the country. Pigment is composed of selected mica flakes that overlap each other in the film to produce a shingle roof effect to ward off moisture and oxygen.

HIGHER MACHINING ACCURACY— A new surface hardening method developed by Giddings & Lewis Machine Tool Co. research engineers now enables the company to equip its machines with ways that have unusually long wearing properties to permit higher machining accuracy over longer periods of time. The hardening procedure, which produces ways free of checks, scale and internal brittleness, involves a special fixture that duplicates the actual mounting surface used on the machine component. This, coupled with a rapid heating cycle prevents distortion. Both heating and quenching are uniformly and carefully controlled throughout the way and are performed in a single pass on the machine.

SQUEEZE THAT CUTS COSTS— Roll edging forging blanks by a single squeeze method in Ford's Canton, O., plant not only is cutting production time, but is showing a 15 per cent savings in steel (p. 61). Single-squeeze operation is performed by heavy-duty Reducerolls produced by National Machinery Co., Tiffin, O. The equipment is similar to conventional type gap rolls except that they have outboard bearings and about 30 per cent of each roll groove is machined out to form a gap that permits entrance of a heated billet.

GEAR WEAR VIBRATION REDUCED—Both wear and vibration are reduced through a new gearing design developed by Allis-Chalmers Mfg. Co., Milwaukee. It includes a tooth profile generated as true involute with a 20 - degree pressure angle, long addendum pinion and short addendum spur gear. Allis-Chalmers engineers say the new design offers a number of advantages. With 75 per cent more tooth area in contact, wear is distributed over greater space. Its use precludes interference between gear and pinion. Because the gear tooth profile is a true involute, very accurately cut, the gear is revolved at a uniform rate.

"DOCTOR" OF HANDLING—So-called manager of material stores and transportation is the man who administers the proper medicines to smooth out the ills of Caterpillar Tractor's diversified mechanized handling system (p. 62). He carries plenty of authority as handling problems here have the same degree of importance as work scheduling, inventory control and other essential functions of production. Working with him is a transportation engineer—responsible for applying the right methods and equipment to particular handling jobs. Both are today credited for the fast-moving supply line that is keeping the company's tractor production at a high level. They are responsible for the mechanized system that delivers thousands of components over an expanded manufacturing area.

HOT SPOT "SPOTTER"—A monitoring instrument that detects unsafe temperatures in machinery, announces the fact and records the information is about to emerge from the laboratory, W. E. Belcher Jr., Minneapolis Honeywell Instrument Co. told members attending the Fall meeting of the American Institute of Electrical Engineers. He pictured the instrument as one that could be used for many applications—capable of scanning rapidly and continuously through 50 primary elements in a matter of five seconds. He said the practical version of the unit would use in place of a scale an array of 50 bullseyes on the front of its case, a howler to attract attention and a recorder that goes into action immediately.

HOW'S YOUR PLANT WEATHER?— If you need a made-to-order climate in your plant, you might take a tip from Columbia Steel Co. (p. 69). Although its plant is in California, some of the steps it took to heat and ventilate properly and, incidentally, to lick some of its condensation and fume problems, may suggest ideas if your situation is similar. The system produces uniform temperatures at working level without drafts. Even box cars brought in on the loading track are given special treatment to offset condensation caused by warm material contacting cold cars.

STAINLESS STEEL DOES IT—Stainless may play an important role in a new approach of modernizing skyscrapers—also paving the way for radical reconsideration of the problem of air conditioning older office buildings. The approach evolved by the architects, Kahn & Jacobs, New York, eliminates completely need of using valuable interior space in the face lifting. It consists of placing bulky, chilled water risers of air-conditioning installations within stainless steel jackets on the exterior of the building, incorporating the entire layout into the design treatment of the facade. This gives the building an entirely different and strikingly modern appearance.

News Summary—p. 25 Market Summary—p. 93

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Mica-Base Paint System Doubles Transformer Tank Life

LIFE of the finish on Westinghouse distribution transformers is more than doubled by a mica-base three-coat paint system. Each coat functions co-operatively with the others to withstand oxygen, acids, salts, and alkalis found in seacoast and industrial atmospheres.

This so-called "coastal finish" system is applied in the same manner as standard finishes; in production it is baked on for speed. A modification of the finish air dries, which means that it can be used to patch a damaged transformer in the field thus eliminating any delay.

Moisture, the Trouble-Causer—Distribution transformers operate under especially severe conditions that affect the finish applied to the outside of the tank and associated hardware. Surfaces of fully loaded transformers exposed to direct sunlight often reach temperatures of 200° F and sometimes higher. During the winter months these surfaces may be exposed to temperatures as low as −50° F. With an operating range of 250° F the paint must be sufficiently flexible so as not to flake off due to differential expansion and contraction between paint and metal.

Moisture in liquid or vapor is the greatest enemy to the finish. If it were not for moisture, the finishing of pole type transformers would present no serious problem except in rare cases. Oxygen, salts, acids and alkalis present in the seacoast and industrial atmospheres usually are destructive as they deteriorate the film and pave the way for moisture to do its damage. Also, the effects of certain impurities accelerate corrosion by moisture once it gets to the metal.

Zinc Chromate vs Corrosion—The prime or first coat applied to the prepared surface is composed of a vehicle giving good adhesion with desired flexibility and chemical resistance to salts, acids and alkalis. Pigments used are primarily zinc chromate and iron oxide.

Zinc chromate is one of the best corrosion inhibiting pigments due to the availability of the chromate iron in the presence of moisture. However, if used as a single pigment, it usually produces a somewhat brittle film. Iron oxide combined with zinc chromate reduces the film's brittleness and increases the vat or storage life of the paint.

Shingle Roof Effect—The second or intermediate coat is the key to the successful performance of the finish. The vehicle is composed of modified phenolic and thermoset type alkyd resins. These are chosen for resistance to heat, oxygen, salts, acids and alkalis in concentrations generally encountered in the atmosphere.

By proper selection of the solvent and adjustment of the resin's setting time, it is possible to remove the solvent completely during the initial part of the drying cycle, before the resin has set to the hard state. This permits the resin to flow after solvent elimination and prevents pinholes through which oxygen and moisture could enter.

The pigment is composed of selected mica flakes which overlap each other in the film and produce a shingle roof effect to further ward off moisture and oxygen. Mica also increases heat stability of the intermediate coat as much as ten times at elevated temperatures.

Use of mica in paint is not new but the way in which it is used in this paint is new. The relatively large mica flakes plus their tendency to settle presented problems of application; these have been overcome.

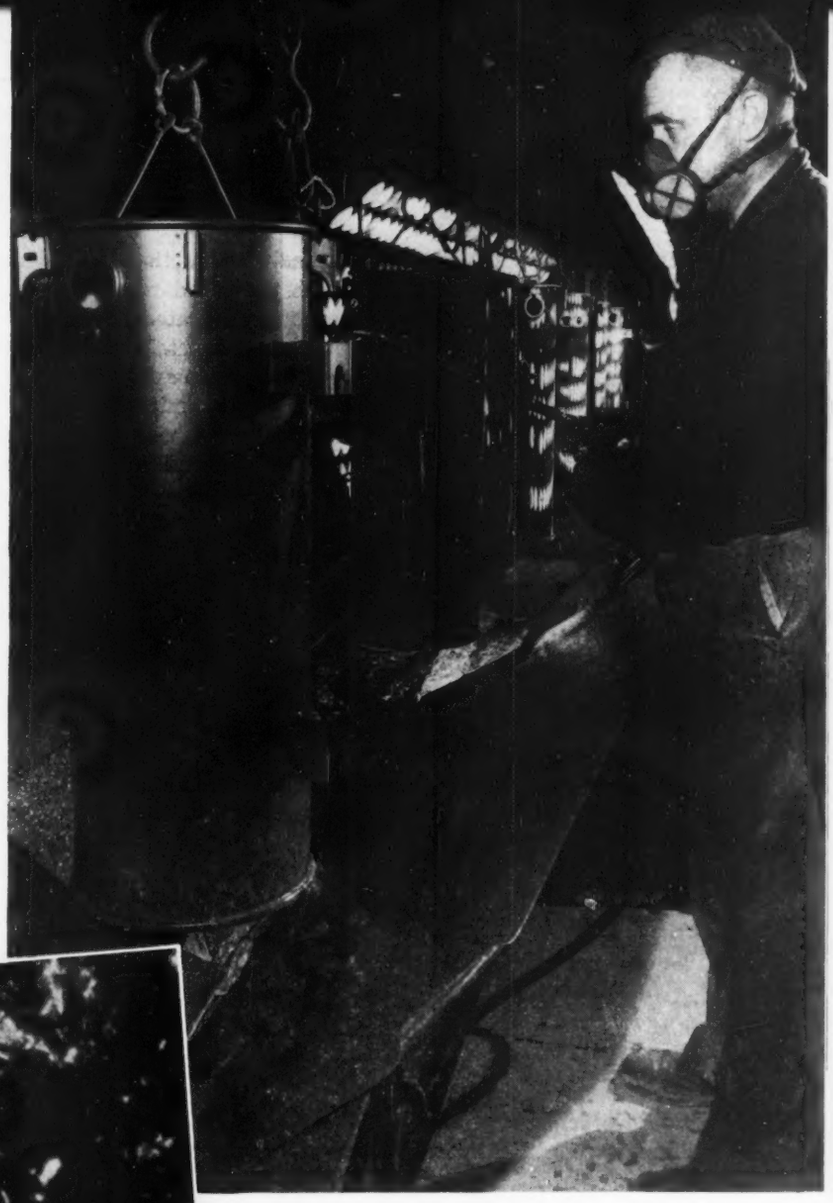
The third and final coat is composed of resins and pigments to withstand the elements and to provide good appearance. It can be tinted to give any desired color.

Blisters at 10,000 Hours—A series of panels was made to demonstrate the resistance of the combination of primer and mica-filled second coat to salt

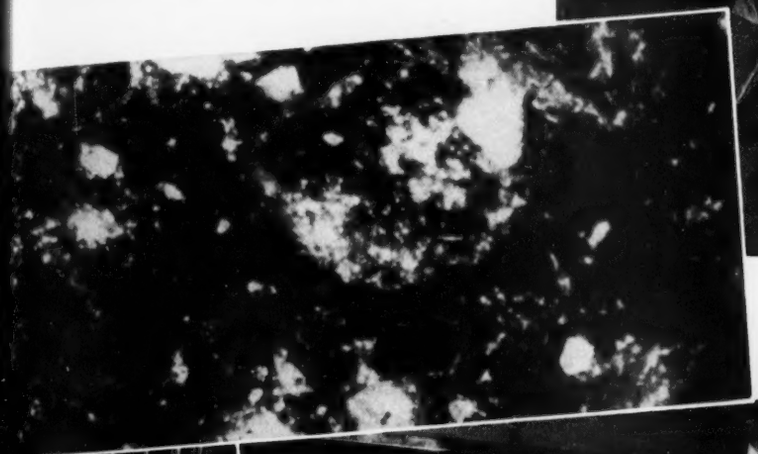
This equipment dips test panels into a bath of either acid or alkali and then lifts them out of the solution to dry in air on four hour cycle, two in the solution and two in the air

THREE-COAT baking type finish developed for distribution transformers withstands widely diverse atmospheric conditions

By J. G. FORD and A. J. KUTI
Manufacturing Engineers
Transformer Division
Westinghouse Electric Corp.
Sharon, Pa.



Below—Photomicrograph of mica flakes after weathering of second coat. The exposed mica flakes appear to be largely parallel to the film surface. "Shingled" effect may partly account for resistance to salt spray and added heat stability of the vehicle



Above—Flow coating is used for priming to fill any crevices left between tank wall and projection welded parts. Viscosity and gravity are very closely controlled

Left — Two transformer tanks were exposed to 1000 hours of salt spray. The tank on right had a standard three-coat finish while one on left had coastal finish

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spray and weathering. These panels were phosphatized, given a coat of primer and then two coats of the intermediate or second coat of the system. They were tested simultaneously with the panels that had been painted with the standard three-coat finish.

After 2000 hours exposure to the salt spray the mica finish showed no change whereas the standard finish was approximately 50 per cent deteriorated. At 3000 hours the standard finish was completely gone. After 10,000 hours continuous exposure to salt spray, small blisters began to appear on the mica finish. When the blisters were broken, there was evidence of trapped gas, possibly hydrogen, and a thin film of rust.

Other mica-finished panels were exposed for 18 months on Florida and California seacoasts. Weathering took place at the surface exposing some of the mica flakes, but there was no sign of corrosion detected.

Flow Coating—The metal surface is first alkali cleaned and rinsed, followed by phosphatizing and a dip in dilute chromic acid. To prevent any contamination of the prepared surface the transformer tanks are given the first or priming coat within a matter of hours by flow coating. Viscosity and gravity are controlled. The flow-coating process is used for priming to fill any crevices left between tank wall and projection welded parts. It also assures complete and uniform coverage of all parts.

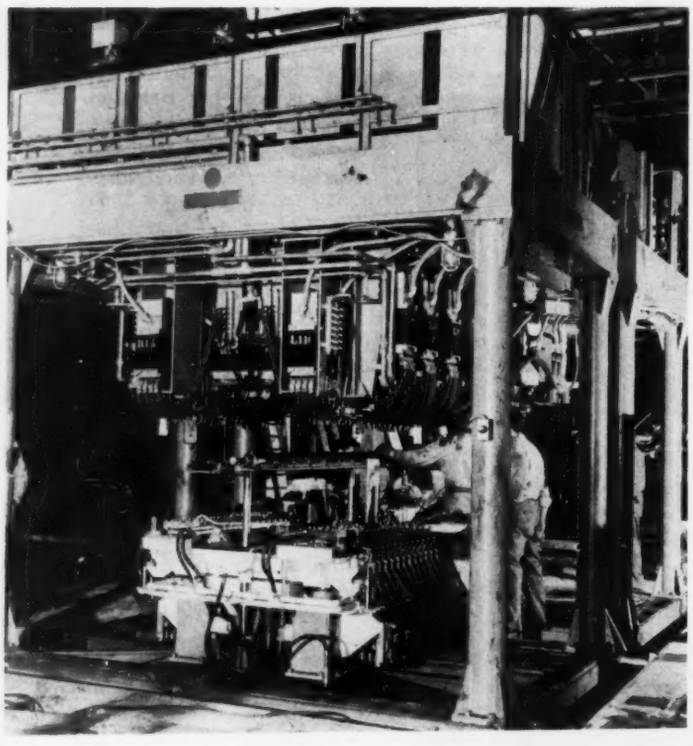
The tank then is conveyed by monorail through an infrared dryer. A surface temperature of approximately 340° F is reached by the time the tank leaves the oven.

Green, Brown, and Gray—After cooling, the second coat is sprayed on. A dark green dye is incorporated into the otherwise clear mica-base paint or enamel to assist the operator in determining coverage and to allow for easy and quick inspection. The dye fades out leaving a dark-brown color on subsequent infrared baking which is done in the same type oven and at the same temperatures as for the first coat. The film dries to make a hard, tough, abrasion-resisting coating.

Not until the transformer is completely assembled and tested is the third and final dark gray coat applied. The transformer is then conveyed through a steam convection oven operating at 160° F where the final coat is dried tack-free. Hardening of the film takes place in storage and shipment.

242-Gun Welder Speeds Auto Assembly

FEW people inspecting the new Henry J in the automobile showroom realize that its manufacture requires such intricate equipment as shown here. The double-unit "walk-through" welding press installed in the Willow Run, Mich. plant of Kaiser-Frazer Corp. assembles floor panels and reinforcing members and brackets for this new car which was recently put in production.



Forward machine builds up the front section of the steel floor pan and component parts, with 134 welding guns firing simultaneously through 34 transformers of 30-kva rating. The front floor pan is welded to the rear pan section in the second press which has 108 guns firing in groups through 27 transformers.

Pushbutton Firing—After raising 18 inches to contact the guns, the table holding the assembled parts is locked into position through four guideposts. Each of the two operators must actuate pushbuttons before the guns start firing. Timers are of the electronic type. Movement of table and actuation of guns are controlled through a 25-hp motor driving a hydraulic pump.

Made by Welding Machines Mfg. Co. of Detroit, the welding press weighs 25 tons, stands 15 feet 8 inches from the floor, and requires a floor area of 14 x 18 feet.

Adapters on the guns holding welding tips are water-cooled. The company also furnished two similar units for multiple spot welding of right and left rear quarter panels on cars that are made at Willow Run.

Technician preparing to plate a part of a measuring device in the inorganic finish laboratory. To rid this area of fumes, a special ventilating system completely changes the air 67 times an hour

Opens Lynn Measurements Laboratory

Meter and Instrument Divisions laboratory represents the ultimate in facilities for developing new measuring devices, creating new materials and analyzing and improving designs already on the production line

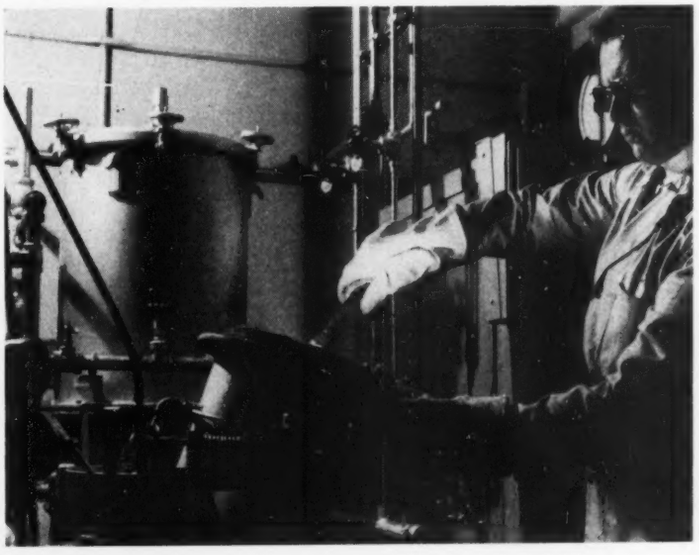
COMPLETE facilities for applied research, product development and design in the field of measurements are provided in General Electric's new measurements laboratory, opened officially this week. Located on the site in Lynn, Mass., where the parent company of General Electric, the Thomson-Huston Co., was founded in 1883, the five-story brick, steel and concrete building contains 142,000 square feet of floor space. Major portion of this is occupied by the laboratory and associated engineering groups, and the remainder by administrative staff of the GE meter and instrument divisions.

Plenty of Air, Gas and Water—Unlimited mechanical and electrical services are available to all work areas through a complete system of pipes and ducts suspended from the corridor ceilings. Mechanical services include hot and cold water, vacuum, processed steam, nitrogen, oxygen, high pressure air, city gas, and low pressure air.

Electric power for general use is served to rooms from a modern power distribution center in the basement. This service offers direct current, at 125 v, and alternating current at 240 v, 3-phase, and 208/120 v, single phase. Special power services are available from the storage batteries, banks of motor generator sets and specially designed electronic power supplies for all the range of measurements applications from microvolts to kilovolts and from microamps to kiloamps.

"On-the-Spot" Electricity—Laboratory specialists can "hook-in" electric power from any part of the laboratory by means of an intricate tie-line system which has conveniently located outlets in each work area and a main distribution panel on each floor. This makes possible the remote testing of instruments and eliminates the need for time-consuming shifting of test apparatus.

The advanced engineering sections, responsible for mechanical and electrical development associated with watthour meters, demand meters, instrument transformers, electric instruments of all kinds, aircraft instruments and time switches occupy more than one floor of the laboratory proper. Completely separated from other engineering personnel, these specialists work in semiprivate cubicles equipped with



In the heat-treating room, an engineer alloys molten metal in one of four specially-constructed furnaces. These furnaces enable laboratory experts to develop and evaluate properties of measurements alloys as they are treated under wide ranges of temperature

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work benches, easily accessible to all services.

Adjacent to their individual cubicles are small-scale machine shops with bench lathes, drill presses and other machine tools for the actual construction of "bread-board" models of new instrument designs.

Met Lab Turns Heat on Alloys—The materials and processes sections develop and evaluate new materials which permit development engineers to expand their horizons to new measurements and new concepts of measurement devices. A metallurgical laboratory, equipped with metallographic, radiographic, tensile and hardness-testing equipment, enables specialists to determine metals' physical and electrical properties. In another area, special furnaces permit the development and evaluation of the properties of measurement alloys as they are treated under wide ranges of temperature.

A special plating and inorganic-finish laboratory makes it possible to experiment with, develop and produce finishes on a pilot-plant scale. Because of the fumes from the plating process, this area is equipped with a special ventilation system which completely changes the air 67 times an hour.

In an adjacent area, life and suitability of various insulations and finishes are tested in a battery of heat-aging ovens, salt-spray baths, humidity chambers, "weatherometers," and "fadometers."

Magnetics Headquarters — Another group in the materials and processes system is headquarters for the science of magnetics, which encompasses the evaluation and application of permanent magnets and magnetic alloys. To evaluate these magnetic materials, laboratory specialists make use of such apparatus as permeammeters, magnetizing equipment, and constant-temperature test rooms.

The general service sections operate a multitude of experimental test facilities to examine designs created by development engineers. At the heart of these test facilities are eight steel-lined "hot, cold, and humidity" boxes for testing instruments under extreme conditions.

To keep a constant check on the calibration of testing equipment, a set of primary standards, equivalent to those at the Bureau of Standards in Washington, is maintained at the laboratory.

Engineers putting developmental instruments through electrical tests at a harmonic generator, variable frequency and dc power supply control board

Above — Unlimited mechanical and electrical services are available to laboratories. They are piped in to all work areas by pipes and bus ducts suspended from the corridor ceilings

Left—To keep a constant check on calibration of testing equipment, a set of applicable primary standards is maintained at the laboratory. Here a calibration expert checks a temperature detector against one of six specially constructed baths housing primary standards of temperature

Roll-Edging Forging Blanks SAVES STEEL

"Single - squeeze" shaping speeds production of forged automotive parts while making material savings up to 15 per cent

By edging heated forging billets in this gap-roll unit, economies in time and material are realized in press forging auto components. Here a rectangular billet is pushed through the gap in the rolls to strike a stock gage. It then is drawn back by the revolving rolls to form the indicated edge contour

A 15 PER CENT SAVINGS in steel and production economies on wheel spindle supports and steering-arm forgings are being realized at Ford Motor Co.'s Canton, O., forge division since the installation of gap-roll edging of forging blanks before succeeding press operations.

Five heavy-duty Reducerolls, built by National Machinery Co., Tiffin, O., are employed—two for Ford spindle supports, one for Mercury parts of the same type and two for steering arm forgings. The equipment is similar to conventional types of gap rolls with this exepection: The rolls have outboard bearings (see accompanying cut). About 30 per cent of the groove is machined out to form a gap to permit entering the heated rectangular blank or billet.

All in One Revolution—As the operator feeds the billet through the rolls, it strikes a stock gage, starting the rolls in motion. The rest of the circumference of the roll grooves is tooled to form the desired shape to the billet, normally accomplished in the edger operation in hammer or press forging. Thus the travel of the billet is reversed, upper and lower edges are worked to shape and it is returned to the operator's side, all in one revolution of the rolls. He then transfers it immediately to the press where the remaining operations are performed without reheating the billet.

Rolls are driven by a 25-horsepower motor, geared to a 5-foot flywheel into which are built a diaphragm-type clutch and brake. The rolls are of die-block steel. Because they exert only pin point pressure in the billet, they give considerably longer life than even the best flat forging dies. Besides, subsequent forging operations require no edger impression in the dies, thus involving less costly dies.

Single Squeeze vs Several Blows—Before introduction of the preforming operation, production on the Ford wheel spindle support was about 6900 pounds per hour. (The steel billet was a 1⅛ x 3¾-inch section, 22 inches long and weighing 23 pounds, forged into two supports.) Since installation of the roll equipment, the work standard was increased to better than 7200 pounds per hour—over 20 per cent—and the billet length was cut to 20¼ inches, the weight reduced 3 pounds.

On the steering arm job, with initial roll edging, the length of the billet was reduced from 25 to 22 inches and weight 1½ pounds.

Reducerolls are in use at a number of forge plants in the U. S. and Canada. In one case, involving an axle forging, the equipment was set up with rolls of plain 0.45 carbon locomotive axle steel and handled over 200,000 pieces with no appreciable wear. In some installations, the rolls may have as many as three grooves to give three edging passes before the final forge press steps.

Gap rolling appears to open up possibilities of the forging press since edging by other methods may require several operations, inasmuch as the press has to shape the piece in a single squeeze. By edging first, additional flexibility is gained in the press as to the various types of forgings which can be handled.

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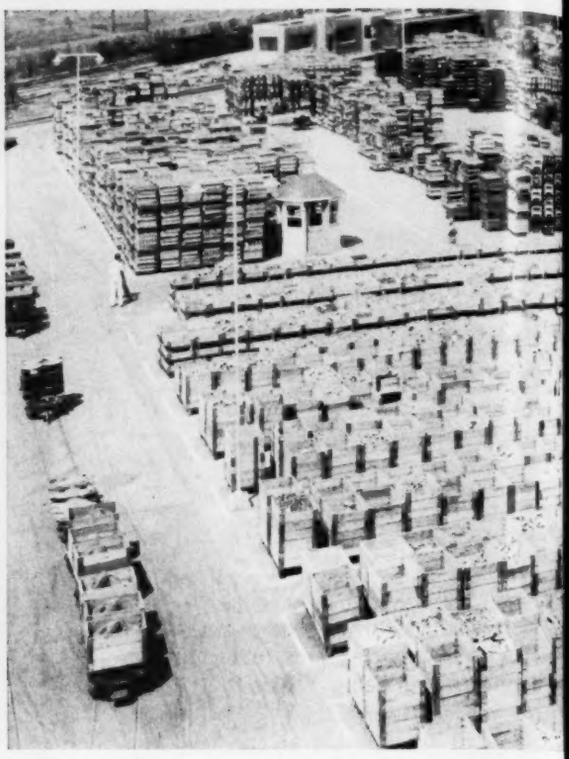
Fast-Moving Supply Line Paces Tractor Production

Caterpillar Tractor's efficient, mechanized handling system is geared to deliver thousands of component parts and assemblies for each tractor built under an expanded manufacturing program



Corner of huge 400-acre paved storage area. Old style wooden tote boxes were replaced by new handier metal boxes

TWENTY tons' worth of handling is necessary for each ton of tractors and diesel engines shipped from the Peoria, Ill., plant of Caterpillar Tractor Co. It's a Paul Bunyan-sized chore involving almost 3 million tons annually. Tractors are made up of 1500 to 2500 different parts, or 8000 to 12,000 parts altogether.

To handle the task of receiving, storing and moving this vast array of component parts, the company established an efficient, integrated materials handling system, fully mechanized to meet production demands.

A manager of material stores and transportation is responsible for all receiving, all stores and all interplant transportation. He reports directly to the production manager.

Materials handling problems have the same degree of importance as do work scheduling, inventory control and control of tools and supplies—all essential functions of production control.

A transportation engineer is responsible for applying the right methods and equipment to the particular handling or transportation job. He is also responsible for the availability of equipment and its maintenance.

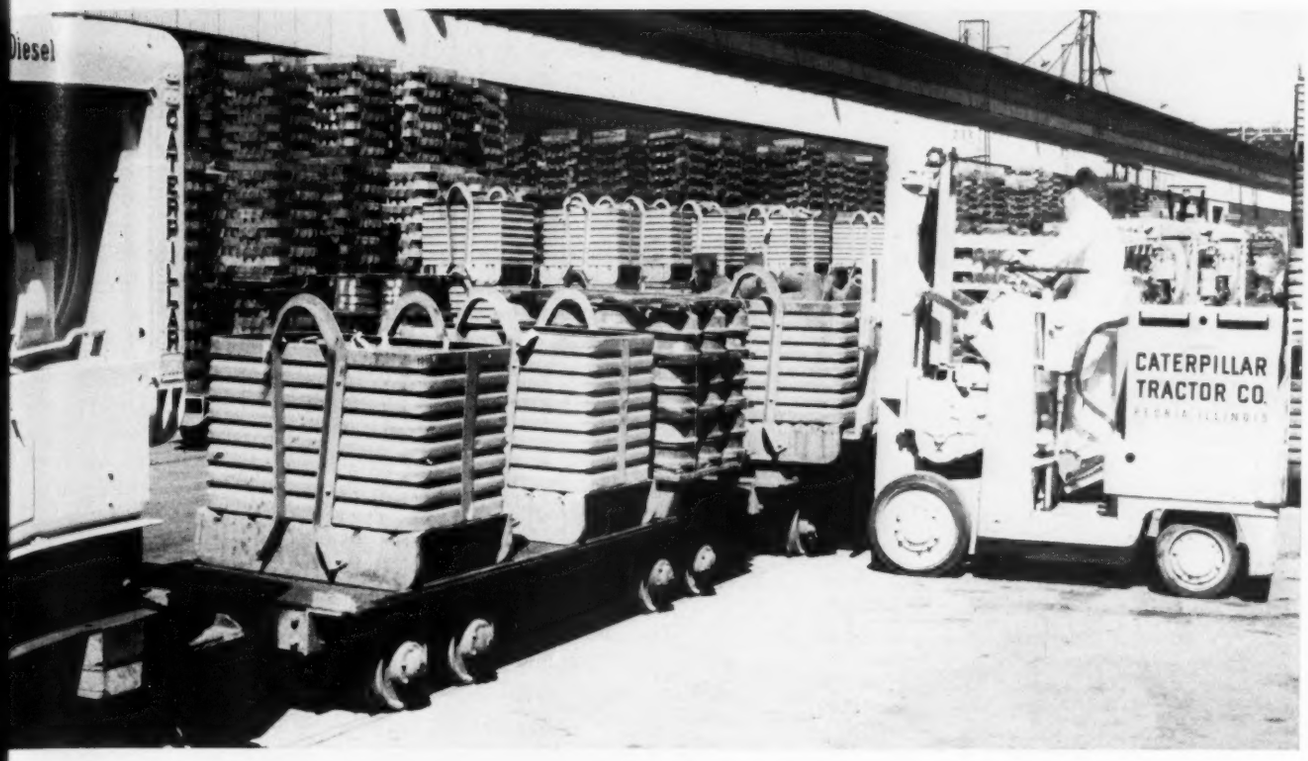
Narrow Gage Backbone—Creation of these positions resulted from an overall study of materials handling made in 1945 when Caterpillar carried on a program to expand production by 50 per cent and to extend plant property from 170 acres to 400 acres. The study highlighted this: The capacity to produce is paced, in many instances, by a fast moving supply line geared to delivering necessary raw materials at a rate sufficient to satisfy manufacturing requirements. To meet the rapidly increasing schedules for Caterpillar production it was necessary to revise many handling methods and mechanize as many manual handling operations as possible by use of fork trucks.

Backbone of the company's old handling system was a narrow gage industrial railroad which connected storage areas with processing and assembly areas. The cars were designed to accommodate wooden containers, or tote boxes, which, in turn, were adapted to narrow aisles and the space between machines in production departments.

Trains were and are limited to approximately ten cars, pulled by an industrial tractor. The load carried by such a train is equal to the capacity of three highway tractors with 20 foot trailers.

All loading and unloading was done on the main line because there were only a few loading spurs. Use of the railroad tended to channel flow of materials along rigid lines. While delays and congestion did occur the railroad provided an extremely low cost means for hauling heavy loads over long distances along predetermined routes on specified delivery schedules.

Back to the Indians—Inadequate space within the property led to the warehousing of many parts in buildings outside of the plant boundaries. These parts and assemblies were trucked to production areas. There were other storage areas within the property, not reached by the railroad, from which parts were loaded onto skid pans and sledded to production by track type tractors. This was one of the most primitive of all hauling methods—similar to that used by the Indians. It was probably used at Caterpillar because there was never a lack of plenty



All materials are moved into production by a narrow-gage railroad or highway trailer trucks. Cranes or battery-powered hand trucks or stackers transport materials through the various spread out production areas

of power to drag such skid loads. Today, however, this hang-over from antiquity has been replaced with efficient tractor trailer, or fork truck-trailer trains.

Incoming parts were unloaded and stored wherever there was an opening. The old style containers used in connection with the interplant railroad consisted of wooden flats with loose removable sides. They could not be tiered, or even double-decked, easily and with safety.

Outside and inside storage areas were overcrowded particularly as almost everything was handled manually, or with the aid of hand trucks. Few power trucks were available and only 30 per cent of those in use were of the fork truck type. These factors limited the use which could be made of the cubic capacity of storage areas. Since materials were stored in many different places over a wide area, it was practically impossible to maintain a satisfactory balance of inventory. Loose sides on containers resulted in considerable loss of material; splintering of wood presented a constant accident hazard.

The company was also confronted with a tight labor condition. Day laborers were used as well as part-time workers from other plants. Even in recent years, not many workers have been willing to do heavy, manual handling jobs. Obviously, this labor situation intensified the necessity of mechanizing all heavy manual handling operations.

Hairpin Tier—One of the first problems tackled was the old wooden container. After thorough study, it was decided to standardize on a metal tote box incorporating a self-tiering hair-pin feature. This container can be safely and quickly handled in storage by a fork truck, or in factory areas by a crane. It does not spill easily and it lends itself to better housekeeping, inventory control and more accurate scale counting. Furthermore, the container eliminates the loss of materials and the accident hazard.

As the mechanization program progressed, paved areas in yard storage were increased 150 per cent. Yard paving is a "must" for the efficient outside use of any kind of fork trucks, just as good flooring is an important factor for all inside transportation.

Yard paving resulted in faster, safer, better paced and more flexible handling in all outdoor storage operations. The more extensive use of fork trucks also enabled efficient utilization of the cubic capacity of all storage areas. This increased storage capacity within the company property, eliminated the need for outside warehousing which, in turn cut out cost of trucking handling and supervision at such places.

Many items of incoming material cannot be handled in boxes. Crankshafts are an example. Previously, they were handled by cranes, one at a time, and set on the flange end which required a lot of floor space. Study by Caterpillar engineers developed a method whereby the supplier ships crankshafts in a unit load. The unit loads are quickly unloaded by fork trucks, placed on specially designed racks and moved to storage. The racks are also used for handling many other materials of odd or unwieldy shape—such as sheet metal, etc.

Even the Vender Gains—Wherever practical, pal-

From data presented in the 1950 summer edition of *Exide Topics*, published by the Electric Storage Battery Co., Philadelphia.

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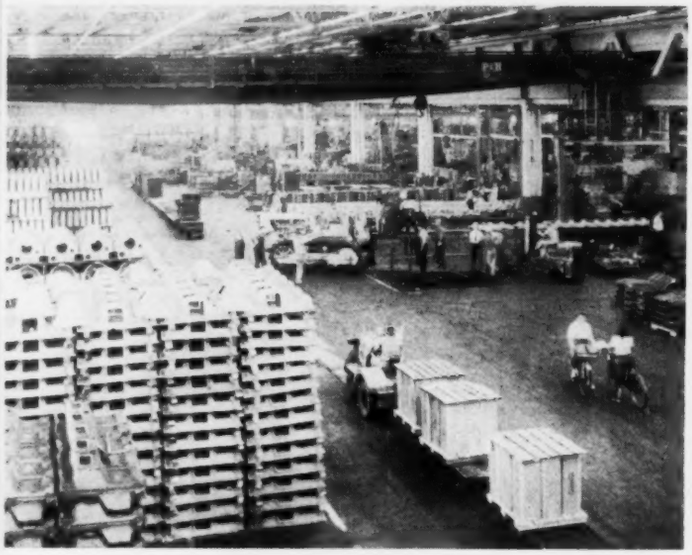


Interior of production building showing stacked tractor components and various equipment used to supply parts to the manufacturing departments

letized unit load shipments are specified on purchase orders. To eliminate extra cost for such shipments, specifications are carefully worked out in co-operation with suppliers. This system often improves the handling efficiency in the vender's plant, and substantially lowers his shipping costs. Items now received in palletized unit loads are: Radiator cores, generators, antifrictions bearings, oil filter elements, screws machine parts, rough pistons and many other parts. Material not palletized by the suppliers is palletized when possible upon receipt. Work with venders on unit load shipments also led to the streamlining of receiving methods. New depressed unloading docks were installed and the receiving areas revamped. Each receiving area is large enough to permit fast unloading, but it is not big enough to serve as even a temporary storage area. This forces the development of methods for receiving, inspecting and moving material to its destination rather than letting it clutter up receiving areas. Today, materials flow smoothly and quickly through receiving areas to storage.

Low Beds & Overhead Cranes—The narrow-gage railroad is still the backbone of interplant transportation system. Thirty-two unloading spurs, and double-tracking, where possible, have been added. The spurs increased the haulage capacity and usefulness of the railroad. Tracks were extended to serve the new engine factory. For the steel fabricating plant, located about a mile from the assembly lines, it was more practical to use highway trailer equipment. In hauling parts for the new Caterpillar scraper, low bed trailers are used because the parts are too large and unwieldy to be hauled on the railroad cars. Materials from storage areas not reached by the railroad are hauled by tractor-trailer trains and fork truck-trailer trains.

Fork trucks, along with overhead cranes, load all railroad cars and trailers in storage and unload them in production, with the exception of the scraper parts which are easier to load with mobile cranes, in storage, and unload by overhead cranes in assembly areas.

"Calling All Cars"—A two-way radio system provides quick communication with the large fleet of mobile equipment. It permits the central dispatching point to contact the truck drivers. Urgently needed equipment can be quickly dispatched, and much duplication and back-tracking avoided by intercepting trucks at points close to the material to be hauled.

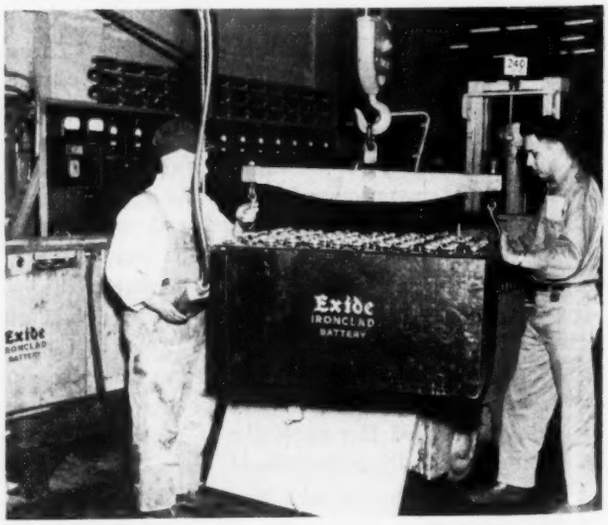
One development of the mechanical handling program is the wide application of battery-powered hand trucks in production areas. Since machine shop aisles are not wide enough for easy movements with large fork trucks, past practice was to move materials through shop aisles with hand trucks. This often interrupted machine operation while operators gave a helping hand to a trucker struggling with a heavy load. Large fork trucks were used only when loads were obviously too heavy for manual hauling. Even in new plant construction, it was not felt desirable to devote more costly floor space to wide aisles simply to permit the use of fork trucks.

Getting Down the Aisle—The battery powered hand truck has been an ideal answer to the narrow aisle problem. It relieves truckers of back-breaking work; it reduces the manpower needed for machine shop handling; and, it enables materials to be moved faster and safer than with manual methods.

The battery-powered hand stacker is an equally efficient handling tool. It is particularly valuable in crowded areas where loads must be lifted, and for loading and unloading railroad cars.

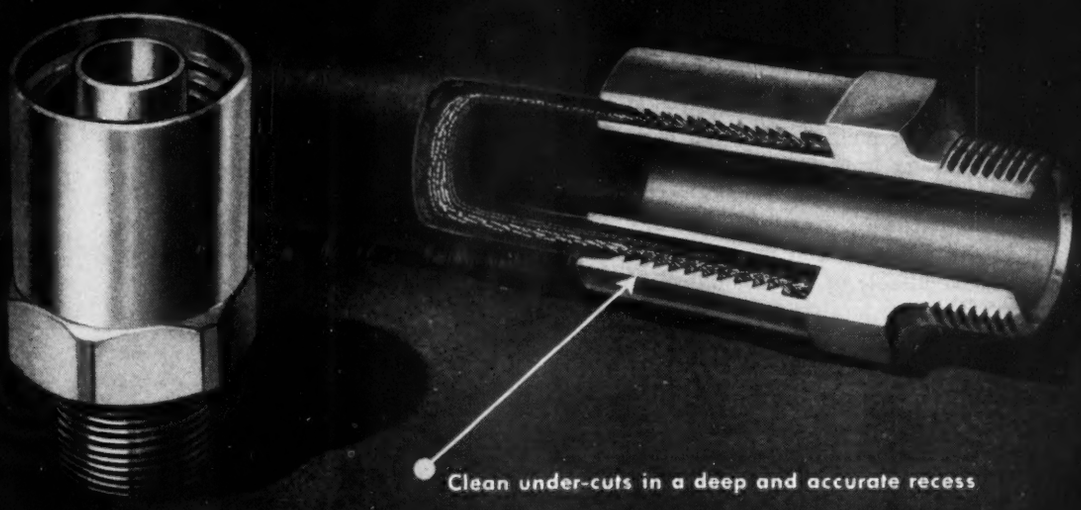
Wide use of hand trucks led to standardizing procedures for bringing materials into production areas by a combination of railroad and tractor-trailer trains, and fork trucks, and the use of powered hand trucks to move them through processing operations.

Today, the company operates a fleet of 200 battery-powered electric trucks. Each battery has a capacity adequate to operate the trucks a full-shift without being over-discharged. The batteries used in large trucks have a capacity of 24 kwh, those powering the elec-



Modern battery-charging equipment enables fast, safe changeouts in 3 minutes or less

REVERE Free Cutting Brass Rod Makes "Duck Soup" out of Deep Recesses!



ANYONE who has set-up a lathe or tooled-up an automatic can see at a glance that the Eastman Pressed-On Hose Coupling is not the easiest thing in the world to machine from the solid.

On one end the boring, chamfering, deep turning to a pipe thread taper up to a round shoulder, and threading, are neither very difficult nor very easy to handle.

But look at that deep recess on the other end! It has reverse under-cut annular serrations that are so clean and accurate that the coupling holds a hydraulic hose with a grip that is stronger than the hose itself.

Anyone who had to do that job would want to work on a material which had all the ease of machining and uniformity of behavior under the cutting tools he could get. That is why the Eastman Manufacturing Company, Manitowoc, Wisconsin, uses $1\frac{3}{16}$" diameter Revere Hexagon Free Cutting Brass Rod in this patented coupling. All of the production problems are in the tools, none are in the material.

The difficult tasks are not the only ones on which the ultimate of machinability will pay off. If you want to work to combinations of speeds and feeds and accuracies which are even a little bit beyond the ordinary, or you have a job which is even a minor challenge to your tool makers and your set-up men, then Revere Free Cutting Brass Rod may be your best friend.

It will not cost anything to find out. Just get in touch with your nearest Revere Sales Office.

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tric hand-trucks, 6.38 kwh. Enough batteries have been provided to permit round-the-clock truck operation.

Battery power is used for this large fleet of electric materials handling trucks because of two important factors: 1—Extremely low down-time. 2—Low maintenance costs.

Large boom trucks, which work outdoors, are gas-powered because it is impractical to drive them into the factory for battery service.

Preventive Maintenance—A central maintenance and repair shop services all mobile equipment; also, four local service stations are in operation throughout the factories. The preventive maintenance program provides for regular inspection, washing, lubrication and minor adjustment at the right time. This program has done much to avoid costly operating delays, increase the number of truck operating hours, reduce repair bills, lower over-all costs for truck operations.

Battery stations are equipped with the latest type charging equipment, using control units that automatically determine and control the amount of charge. Modern, two-way traveling hoists enable batteries to be changed in a minimum time—average 3 minutes. Equipment is also used for the quick, easy watering and cleaning of the batteries. Gravity readings of a pilot cell are taken regularly and recorded so that accurate records are available of the amount of work done by each battery. This is also done to eliminate the possibility of successive over-discharging.

The battery change schedule for any particular truck can be revised if records indicate that its battery is regularly on the job too long between charges. In addition to this a definite schedule for inspection and equalizing has been worked out.

Accurate figures on cost, down time, and other factors are being kept. This is very important as it indicates cost of operation of all types of equipment.

Forging Process Speeds Wing Output

A revolutionary new forging process now under development for the U. S. Air Force is expected to become an important time and money saver in the manufacture of airplane wing panels.

Developed by the Air Materiel Command's Industrial Planning Division, Lockheed Aircraft Corp. and Wyman-Gordon Co., Worcester, Mass., the process utilizes specially designed dies and a vertical hydraulic press to forge integrally-stiffened wing skins, $\frac{1}{8}$-inch thick, thus eliminating entirely the need for riveted reinforcements.

Need for integral stiffening in aircraft wings arose with the advent of faster, sleeker planes and their attendant thinner wings that left no room for heavy interwing supports. Wing skins themselves had to be bolstered through tapering and integral stiffening.

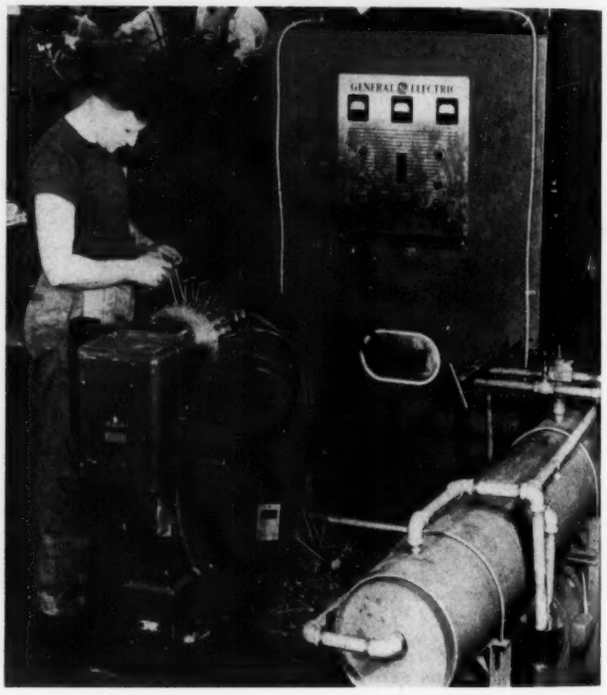
But when machined out of solid stock, the conversion loss ran as high as 80 per cent, meaning that out of every 20 carloads of aluminum used for tapering or stiffened skins, 18 carloads were machined away and sent back by the manufacturer as chips. With the new forging process the loss of aluminum through chips is less than one half of one per cent.

At present, the largest vertical hydraulic press in this country, an 18,000-ton giant located at Wyman-Gordon, is being used to turn out the experimental rivetless panels.

Induction Hardening Cuts Cost 30%

SINCE its organization in 1901, Thompson Products Co., has produced valves for practically all of the modern automobile manufacturers in addition to manufacturing sodium filled aircraft engine valves. To retain its position as one of the largest engine valve manufacturing companies, the Cleveland company keeps a weather eye on its production processes, constantly making use of developments that make a better product and reduce costs.

Confronted with a demand for increased valve production, Thompson realized that its heat treating process did not have the capacity for expanded operations. Furthermore, it was obvious that the more costly process then in use and the inspections involved needed to be eliminated or considerably reduced to maintain a marketable price on the product. An improvement in quality was also necessary because of higher combustion temperatures in the latest engine designs.



The Answer—With the installation of a 20 kw induction heater made by General Electric Co., Schenectady, N. Y., Thompson attained the consistent heating, hardness and hardness depth sought in the treated valves. A reduction in production cost per item or 30 per cent has been confirmed by the company's engineers.

The valves are placed tip down in a rotating drum for tip hardening. The variable in the product formerly encountered is now eliminated as input and time under heat can be exactly controlled. In the first three months of operation, the setup has processed in excess of 35,000 valves per day while operating on a 24-hour day, five days a week.

MAKE YOUR OWN WEATHER

Made-to-order climate conditions over 24 acres of plant under one roof

GOT a hard-to-lick heating problem in your plant? Columbia Steel Co. had one in its 24-acre sheet and tin plate mill at Pittsburg, Calif., and solved it. The mill's heating demand is greater than that afforded by California weather conditions; so something had to be done about that. There was a condensation problem as well. It was caused by precipitation of water droplets on cold metal surfaces from atmospheric moisture held in suspension by warmed air within the mill. Those conditions and the need to remove fumes from hot-dip tinning baths made necessary an air-conditioning system that would overcome the problems.

Made-To-Order Climate—To heat and ventilate the various sheet and tin plate warehouses, areas housing the tin house machine shop, tin shearing lines, hot dip tinning units, and the tin plate assorting room —covering almost half the mill area—it became obvious that the heating system must consist of a number of strategically placed units. A total of 32 heaters of the Counterflo forced air type, made by Dravo Corp., Pittsburgh, were installed in various portions of the sheet and tin plate mill. Of these, 21 had an output of 1,250,000 Btu per hour each, while the other 11 had an output of 1,000,000 Btu. All are fired by natural gas.

The system was designed to produce a uniform temperature at the working level without draft. The heaters draw in cool air at floor level through intake louvers at the rate of 11,000 cubic feet per minute per million Btu output, temper it, then circulate it.

Air temperature is raised approximately 80° F, then the air is distributed through directional louvered nozzles parallel to the floor, but above the workers' heads, at sufficiently high velocity of 2000 feet per minute, to evenly blanket a large area. This method of heat distribution produces a uniform temperature at the working level without draft and tends to prevent warm air from rising immediately to the roof, thereby reducing roof heat loss.

Concentration Upon Condensation—To prevent condensation caused by warm air meeting a cold body, nine heaters were installed in the tin plate warehouse and four each in two sheet warehouses. Certain of the heated air streams were directed downward to heat the floor as well as the material stacked in the immediate vicinity.

Box cars brought in on the loading track in the tin plate warehouse also are given a special treatment. To offset condensation caused by material coming in contact with cars in cold weather, the box cars are held on an indoor loading track for a period of from 12 to 24 hours before any product is packed into them for shipment to the customer. Thus, any possible loss from condensation of atmospheric moisture of the product being shipped is eliminated.

Make-Up Air Is Tempered—Near the end wall of the tinning room is a heater which draws air from out-of-doors, warms it, and blows it through a duct above the employees' heads. The warm air stream is directed downward by the duct outlets so that each employee in the area is assured of a plentiful supply of fresh air. This duct becomes progressively smaller as it extends away from the heating unit.

During the summer, burners are turned off, and heating units are used to circulate fresh air in the same manner in which heated air is distributed in the winter.

Fresh air duct running over these Wean hot dip tinning machines from the heater in background supplies each operator with comfortably heated fresh air. Duct is progressively smaller as it extends away from the heater. Note the fume hood below the fresh air duct

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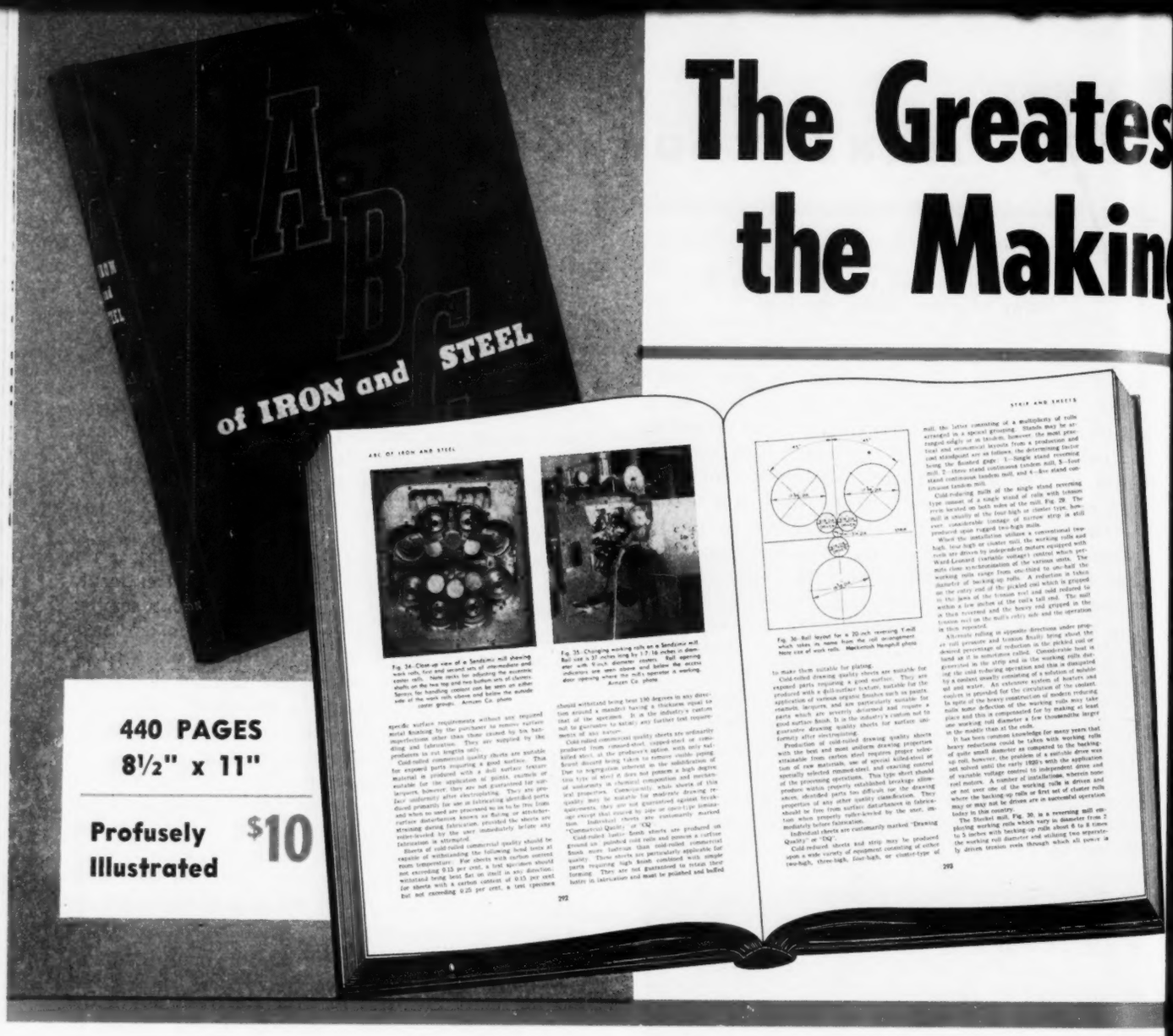

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NEW INSULATION
Extends Motor Service

IMPROVEMENTS in motor insulation provide a major contribution to easier inspection and servicing, less downtime and machine outage, and lower maintenance costs. Specifically, these improvements have been designed to combat more effectively those operating conditions that affect motor service life most severely—corrosive atmospheres, total winding temperatures, dust and dirt, oil and vibration.

Among such developments of importance from the maintenance viewpoint, say engineers of the Reliance Electric & Engineering Co., Cleveland, are the increasing availability of more effective materials and improved coating methods, especially those for insulation of class B motors designed for high-temperature service.

Out of an extensive study of varnished tubing grew a comprehensive quality-check-and-improvement testing program, covering various types of available tubing suitable for coil leads in both semi-enclosed and open-slot design motors. From this stemmed a new Fiberglas tubing, BH 649, developed by Bentley, Harris Mfg. Co., Conshohocken, Pa.

Survives the "Bends"—With a plastic-coated sleeving the difficulty of failure occurring when tubing was held in a bent position over long periods of time was overcome. More effective insulation was obtained by the disposition of the inside cushion of fibers to accept a subsequent coat of impregnating varnish.

Another new material that contributes to increased insulating efficiency and longer motor life is Glastic, a Fiberglas reinforced polyester laminate developed by Laminated Plastics Inc., Cleveland. The material is being used in selected motor components, including such items as middle sticks, slot wedges, armature end laminations, collars and coil washers.

This low-pressure, fast-curing plastic laminate has already demonstrated its high heat resistance, arc resistance, impact strength, flexural strength, and low water absorption—characteristics said to prove important to efficient operation of motors under the high humidity conditions.

Now It Is Molded—Use of Glastic in electric motor manufacture is currently being extended to the molding of solid shapes—brush studs, end shelves and coil supports. Compounded from selected polyester resins and Fiberglas, the material is different from the standard sheet material used for the various components previously mentioned in that it can be compression-molded into intricate shapes of variable cross section.

Still other applications of new insulating materials are found in the bonded slot liners of laminated glass-mica-glass used in phase-to-phase insulation of motor coils, in the glass-sleeved head connections of modern motor construction, and in the adoption of

Cloth-based phenolic material, made by Laminated Plastics Inc., Cleveland, enables motors built by Reliance to operate in high temperature service with less maintenance

Fiberglas tape to tie down stub connections to coil heads.

Exposure of motors to extreme moisture, acids, alkalies, oil, dirt and abrasive dust likewise places a premium on the protective values provided by the materials used for insulation. Recent strides in methods as well as materials mark a substantial step toward reduced maintenance.

Objectives Are Four-Fold—Varnish-coating of motor windings has a four-fold purpose: 1. To penetrate windings; 2. to drive out air and fill in voids; 3. to build up a hard, tough protective film on exterior surfaces of windings; and 4. to bond the wires firmly to each other and to the metal parts with which these wires come in contact.

Accomplishment of these objectives provides a number of benefits: It increases dielectric strength of windings against grounds and against shorts to other parts of the windings themselves; it increases resistance of coils to moisture; it improves the transfer coefficient of the windings. In addition bonding of wires to each other and to the frame work of armatures, rotor or stator helps hold the coils of which they are part against movement caused by expansion and contraction by magnetic forces in the motor, or, in the case of rotating parts, by centrifugal forces.

In the Reliance process, wound rotors, stators or armatures are preheated to drive out all moisture, then dipped in a synthetic polymerizing varnish of the viscosity and specific gravity to give thorough penetration. With voids filled with this thermo-setting plastic impregnating material, a solid mass of wire and insulation is said to result.

Controlled Baking—Windings are then baked under controlled temperature to drive out all volatile content, then immediately immersed in the same syn-

thetic polymerizing varnish of higher viscosity to give maximum fill and build-up. A second thorough baking follows to produce a tough, hard, glossy protective covering. Spray application of an oil-resisting, air-drying, orange-colored enamel provides the final protective finish coat.

Besides contributing to greater operating efficiency and longer life of electric motors, these insulating materials and methods also provide a number of worthwhile advantages conducive to good maintenance practice and economy. Glastic slot sticks and BH 649 Fiberglas tubing or sleeving on leads resist breakage from vibration. It was found that vibration due to misalignment is less likely to damage windings that are more firmly bonded together.

"Respirator Laundry" Washes Up Management Problem

CLEANLINESS may be far from being next to Godliness, but it helps when it comes to ironing out some management problems.

For years Bethlehem Steel Co. tried to sell employees on the idea of wearing protective respiratory equipment. It furnished respirators for employees but had no centralized or positive control over their use.

But things have changed. A "respirator laundry" did the trick. Workers now freely use the equipment without any management compulsion. Furthermore, the company's safety department believes that employee production efficiency is up.

Before the program was inaugurated, each department purchased its own supply. Workmen frequently discarded an entire respirator if the dust filter became clogged.

Respirators Used Voluntarily — Today, employees know respiratory protective equipment is sterilized, is the right type for the hazard involved and that it is fully effective. Even laborers who clean out dusty places wear respirators voluntarily.

The New Setup—Here's how the system works: After every shift, workmen turn in respirators at a central location, usually the tool room, in their respective departments. Next day, they each are given a thoroughly cleaned, sterilized, cellophane-wrapped respirator. Every dust and fume respirator is equipped with a new filter daily and cartridges in chemical filter respirators are replaced as needed.

Daily "Laundry" Chore—An average of 200 respirators are cleaned daily by trained personnel at the central station. The program is arranged so every department is allocated three times the number of respirators it requires. This is done to make sure each worker gets a clean, sterilized respirator daily. Needs of the departments are compiled by the head of the department and the assigned safety supervisor.

When used respirators arrive at the cleaning station they are checked in so the same number and types can be assigned for delivery the following morning. All respirators are marked with symbols identifying the department in which they are used.

This industrial dishwashing machine at Bethlehem Steel Co. sprays respirator parts for three minutes with a mixture of soap, detergent and 130-135-degree water. All parts then are rinsed with clear water

Some respirators that must be worn continuously also bear the individual employee's check number.

Psychological Effect on Worker—Once tallied-in, the respirators are dismantled. Main components are segregated into groups because all parts are interchangeable. Filters are discarded immediately regardless of amount of dust they contain. Company feels that although a filter is used only a short time during the day, it is best to replace it. One reason is that it might be used longer the next time and collect too much dust for breathing comfort. Another factor is the psychological effect on workmen who know they are getting a fresh, clean filter each day. Even more important is the production efficiency of the respirator maintenance program resulting from standardizing on daily filter replacement. The plant uses about 3500 filters a month.

Torque Converter Locomotives

Taking a page from the automobile and bus book is the Plymouth Locomotive Works Division, Fate-Root-Heath Co., Plymouth, O., which has developed a line of torque converter locomotives. Installed between the engine and the final drive, there is no rigid or mechanical connection between driving and driven parts.

The power is transmitted entirely by a fluid medium which makes it impossible to transmit shock loads to the engine. Advantages said to result from use of the torque converter are: Shocks and vibrations are greatly reduced; engine cannot be stalled; torque is multiplied up to five times at stall; infinitely variable reduction ratio automatically adjusts to load conditions.

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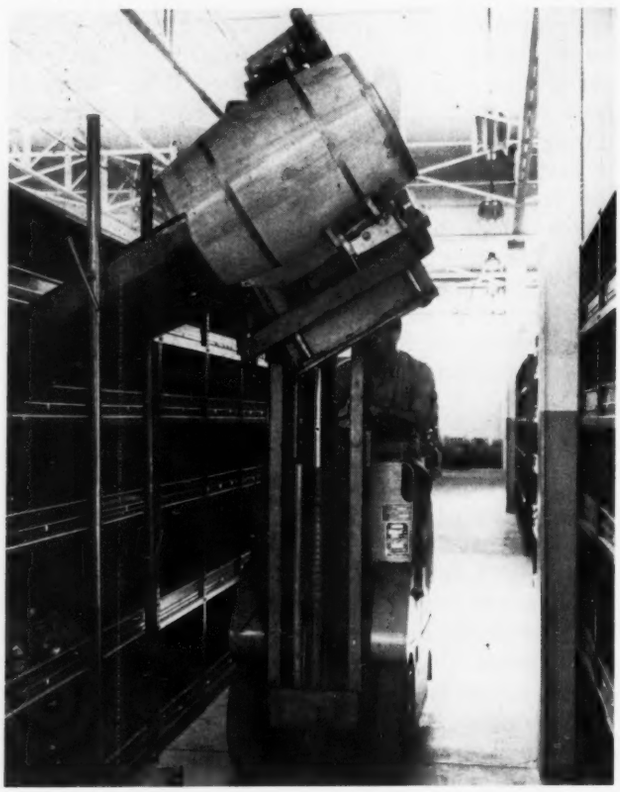
"Custom" Handling Fits the Job

MADE-TO-ORDER materials handling procedures, combined with standard methods and equipment, are "doing the job" in the plant of Republic Supply Co., Los Angeles. Having converted to its present plant from an outdated two-story structure, the company, a supplier of oil well and industrial supplies, faced two problems: Handling routine unit loads of materials; handling barrel-loads of fittings that had to be broken down into smaller quantities before shipment.

Although standard handling methods and equipment are employed wherever possible, the barrels of fittings necessitated use of special equipment—equipment that would be able to lift, stack and empty the barrels.

Triple-Threat — These three operations are performed by a specially developed set of revolving forks with clamp attachment engineered by Automatic Transportation Co., Chicago, for use on its 2000-pound capacity Skylift electric fork truck used in the plant. It enables the company to pass up manual handling, kick down costs and run up production.

On arrival, the barrels are moved from the dock to the surplus barrel storage area by barrel handling truck, then tiered four-high on racks. When called for, they are brought to the order floor by the truck, raised to the proper height and the contents "chuted" into the correct stock bin as the accompanying photograph shows. Thus the fittings reach the plant and are placed in bins without any manual materials handling operation.



Barrel load of fittings being emptied into a stock bin by truck equipped with rotating barrel lifting mechanism. When "chuted" into bins, fittings are ready for order pickers

Note the Contrast—When the old plant was in operation the technique was almost entirely manual. Barrels were tiered and detiered by portable elevators. A man standing on the platform of the lift "walked" the barrel into place, after which it was lowered and taken to the order area by hand truck. Upon reaching the order floor, the thousands of fittings were dumped on the floor, then to be shoveled laboriously into their stock bins.

Now, when feasible, incoming materials are put on standardized 36 x 48-inch pallets or in pallet boxes. Unit loads are moved to storage on Transporter operator-led electric trucks. They are stacked in place by a 4000 pound capacity Skylift electric fork truck.

Movements to the shipping department are handled according to their size, small loads going on order picking trucks, but larger quantities taken to the dock by the operator-led trucks. Here they join the rest of the order.

The feeling exists at the company that its 90,000 square foot plant is being utilized to the fullest extent, with no wasted air space, through the use of these handling procedures. Injuries to employees have been reduced, it is reported, this coming from the virtual elimination of manual handling.

Press Assembles Valve Guide

Four valve guides are pressed into place at one time by an automatic cycle three-station machine recently installed in the cylinder head production line for Willys-Overland Hurricane F-head engines. Automatic inspection is provided by the machine, a 15-ton assembly press, built by Colonial Broach Co., Detroit.

It is equipped with pressure switches which interrupt the cycle if any one of the four press fits is either too tight or too loose. Signal lights at the top of the machine indicate the trouble and show directly which guide is defective. In addition to improved quality control, the inspection system also prevents damage to the machine or head castings.

Here's the Cycle—Automatic cycle includes six steps: 1. Cylinder head is loaded in station 1 between guide rails and is backed against an approximate stop. 2. It is then transferred to the second station where it is located automatically. 3. Brushes moving up from below, clean out the valve guide holes and leave an oil film to lubricate the guides as they are pressed into place.

4. A shuttle feeds four valve guides from a tube-loaded hopper and moves them over the top of the cylinder head directly under the plungers. 5. As the ram moves downward four stepped plungers enter the bores of the guides and press them into the casting. 6. The ram then returns to the top and the shuttle returns to the hopper for four more guides, while the next cylinder head is automatically moved into position and ejects the finished part to station 3 and then onto the conveyor.

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"No more gambling on tool steel selection"

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To use the Selector, all you need know is the characteristics that come with the job: type and condition of material to be worked, the number of pieces to be produced, the method of working, and the condition of the equipment to be used.

FOUR STEPS—and you've got the right answer!

1. Move arrow to major class covering application
2. Select sub-group which best fits application
3. Note major tool characteristics (under arrow) and other characteristics in cut-outs for each grade in sub-group
4. Select tool steel indicated

That's all there is to it!

Here's an example:

Application—Deep drawing die for steel

Major Class—Metal Forming—Cold

Sub-Group—Special Purpose

Tool Characteristics—Wear Resistance

Tool Steel—Airdi 150

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Continuous seamless pipe mill at the Lorain, O. works of the National Tube Co. as one looks toward the front of the mill

Continuous Seamless Pipe Mill Employs One-Diameter Billet

From charging table to pilers—only four manual operations are involved in process which delivers 2-inch pipe in 142-foot lengths at speeds of a quarter mile per minute

By JOHN L. YOUNG
Vice President-Engineering
National Tube Co.
Pittsburgh

APPLICATION of the continuous principle to the new seamless pipe mill of the National Tube Co., Lorain, O., permits production of seamless pipe in multiple lengths and at substantially constant tonnage regardless of diameter or wall thickness. The tension reducing mill, sometimes called the stretch mill, is a National Tube development. A similar mill is in operation in the company's Gary, Ind., plant (See STEEL, July 3, 1950, p. 94).

The new mill has a rated capacity of 18,000 tons a month in the size range of 2 to 4-inch pipe. The 2-inch pipe is delivered from the 12-stand tension reducing mill in 142-foot lengths at a maximum speed of 1300 feet per minute. The outstanding feature of the mill is that only one size billet diameter is required, regardless of the size of finished product. All sizes to be produced from 2 to 4-inch pipe are made from a single billet diameter weighing ⅓-ton. This means that regardless of pipe size produced, the tonnage rate of the mill is substantially constant or approximately 14 tons per hour.

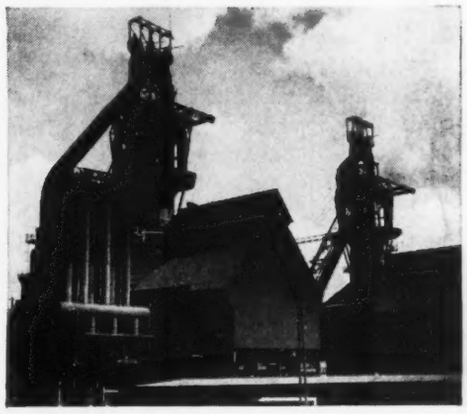
Little experimentation has been done in stretch reducing larger sizes of pipe and it probably will be some years before the proper limitations of the process are determined. The furnace charging machine, which is in alignment with the furnace charging conveyor, is completely automatic and is synchronized with the rotation of the furnace, both of which can be controlled manually by the discharge machine operator.

Tough Jobs Eliminated—Only four manual operations are involved in the process from the time the billets are placed by the overhead crane on the charging skids at the furnace until the cooled, cut-to-length, hot-rolled tubes arrive at the pilers. First of these manual operations is the discharging of the billets from the rotary hearth furnace. Second and third manual operations are at the piercing mill where the piercer operator and plugger are stationed. By remote control from a pulpit the operator introduces the heated billet into the piercer rolls and removes the pierced billet from the outlet table. The piercer plugger installs a new piercing point and removes the used piercing point after each operating cycle.

From the time the pierced billet is ejected from the piercer outlet table, the entire tube making

1,841,000 TONS WITH ONE "NATIONAL" CARBON LINING!

...and still going strong!



● Carbon is the ideal material for lining blast furnaces. One example proving this statement is the record of one of the largest blast furnaces in this country, in which a "National" carbon block lining was installed several years ago. This furnace has produced approximately 1,841,000 tons of iron as of September 1, 1950 and is still going strong with the original lining.

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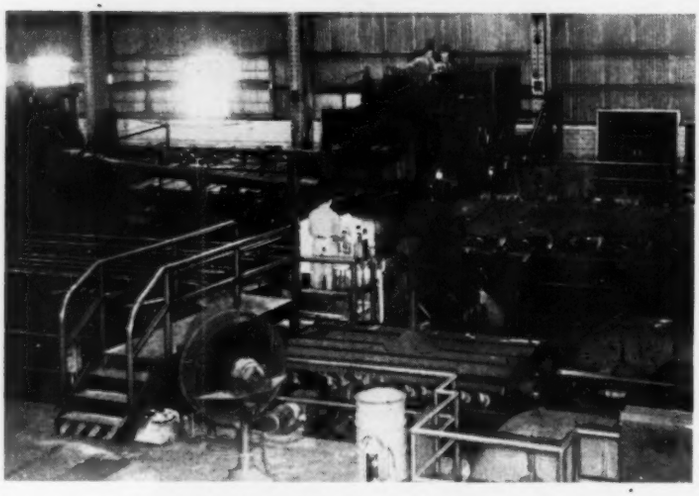
cycle is completely automatic and synchronized until the cooled finished-to-size tube arrives at the straighteners. Introduction of the tube into the straightening machine accounts for the fourth manual controlled operation. After straightening, the tubes are automatically conveyed and delivered to the automatic disk cutter type cutoff machine.

Merry-Go-Round Heating—A rotary hearth billet heating furnace with a rated capacity of 75 tons an hour, was installed at the new seamless mill. In



Here, piercing mill is in background. Operator introduces heated billet into piercing rolls by remote control from a pulpit

this furnace the hearth, which is 80 feet outside diameter and 18 feet wide, rotates on wheels. The charging and discharging doors are in close proximity. Cold billets are placed on the hearth which after rotating through about 340 circular degrees, delivers them to the discharge opening, uniformly heated and at proper piercing temperature.

The Mannesmann-type piercing mill, which is powered by a 4500-hp synchronous motor, has 42-inch rolls which rotate at 101 rpm. This mill produces a tube hollow 5¾ inches diameter by 24 feet long.

The continuous rolling or mandrel mill consists of nine tandem, individually powered stands of two-high grooved rolls, 26 inches diameter. The roll stands are mounted with their axes at 25 degrees from the vertical and with consecutive stands having their axes at 90 degrees to one another. The motors driving these roll stands total 8500 hp. The shape of the tube which has been oval in the first eight stands, is changed to circular section in the ninth stand. The rounding-up operation effected by this stand frees the inner surface of the tube from the mandrel bar to facilitate its withdrawal. This mill delivers a 65 foot tube at rates up to 900 feet per minute. The overall wall reduction effected in the mandrel mill is about twice that now made in the conventional 2-high plug mills.

No Need for Mandrel—The tension reducing mill consists of 12 stands, 14 inches diameter 2-high overhung rolls on 20½-inch centers. Each stand is driven individually by a 200-hp motor. Tension reducing is unique in that without the use of a supporting mandrel, the wall thickness of the tube is maintained or reduced simultaneously with the reduction in diameter.

In the tension reducing mill the tension forces, to which the tube is subjected between roll stands, are not only effective in reducing the wall thickness of the tube but makes possible diameter reductions in successive stands more than 20 per cent greater than can be made in a conventional mill. Ability to maintain or reduce the entering tube wall while large diameter reductions are being made in successive stands permits a single entering tube outside diameter size to be employed for the production of all pipe sizes in the range 4 inches to 2 inches. Pipe diameters over 3 inches are brought to final dimensions in the sizing mill.

Cutting Heads Rotate—Rotary disk cutoff machines are of new design. The tube is held stationary while the rotating heads, each of which carries three 7-inch diameter idler disk cutters, rotate continuously as the cutters are hydraulically forced towards the centerline of the machine to sever the pipe wall. Each machine is a double unit, with two cutter heads. The heads rotate at about 300 rpm and make it possible to reduce the actual cutting time on 4-inch standard pipe to less than two seconds. These machines have been designed to measure and cut automatically a predetermined length of crop from the end of the tubes, after which the remaining length is measured automatically and cut into multiples which are delivered to the pilers. From the pilers the cut-to-length tubes are removed by overhead crane and placed in stock racks.

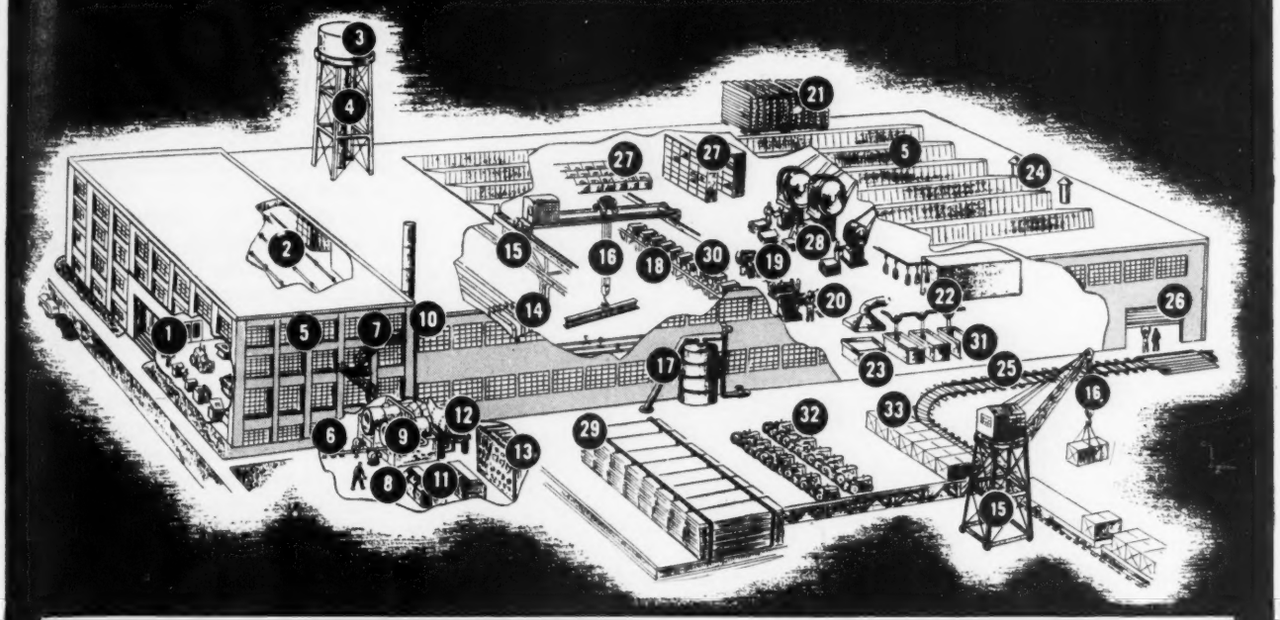
The finishing floor consists of three lines. Two of these lines are equipped with facing and chamfering units, threading units, automatic coupling screwing-on units and automatic testing units, to accommodate pipe lengths up to 50 feet. The third unit accommodates pipes up to 65-foot lengths though it is not served by threading or coupling screwing-on machines. All units are equipped with dual heads and the control is so arranged that operations may proceed on either of the dual heads, the other ones becoming available for adjustment or tool replacement, although they are both normally operated as a unit. Each of the three lines accommodate pipe sizes of 2 to 4 inches, and each line has been designed with a finishing rate on 2-inch pipe of 420 pieces per hour.

From a paper presented at the annual convention, Association of Iron and Steel Engineers, Public Auditorium, Cleveland, Sept. 26-29.

Westinghouse Reaches Brazil

Oldest and largest private steel producer in Brazil, Companhia Siderurgica Belgo-Mineira at Monlevade, has installed electrical equipment made by Westinghouse Electric Corp., Pittsburgh, in a new reversing hot-strip steel mill. Included is a 2000-hp main drive motor, a 1750-kilowatt motor-generator set, Rototrol rotating regulator control units, and auxiliary motors. Main mill motor and motor-generator set will be ventilated by air passing through Precipitron electronic air cleaner units.

LOST: $6,000,000,000 FROM RUST!



MAINTENANCE USES

1. Products display
2. Sprinkler system
3. Water tank
   Exterior
   Interior
4. Riser and Tower
5. Window sash
6. Piping
7. Fire escape
8. Boiler room maintenance
9. Boiler setting
10. Gutters and down spouts
    Exterior
    Interior
11. Stored metal
12. Various tanks and air reservoirs
    Exterior
    Interior
13. Electrical control panel, bus bars, battery terminals, conduit
14. Valves, bonnets, stems
15. Structural steel
16. Chains and cables
17. Piping—Insulation on piping
18. Conveyors
19. Templates, dies, and gauges in storage
20. Stored machinery
21. Cooling tower
22. Drying ovens
23. Acid tank and ventilator hood
24. Ventilators
25. Railroad track, rail joints
26. Steel overhead doors

PRODUCTION USES

27. Parts in storage
28. Metal stampings
29. Stock metal in storage
30. Production parts
31. Dipping production items
32. Finished production items
33. Export shipments

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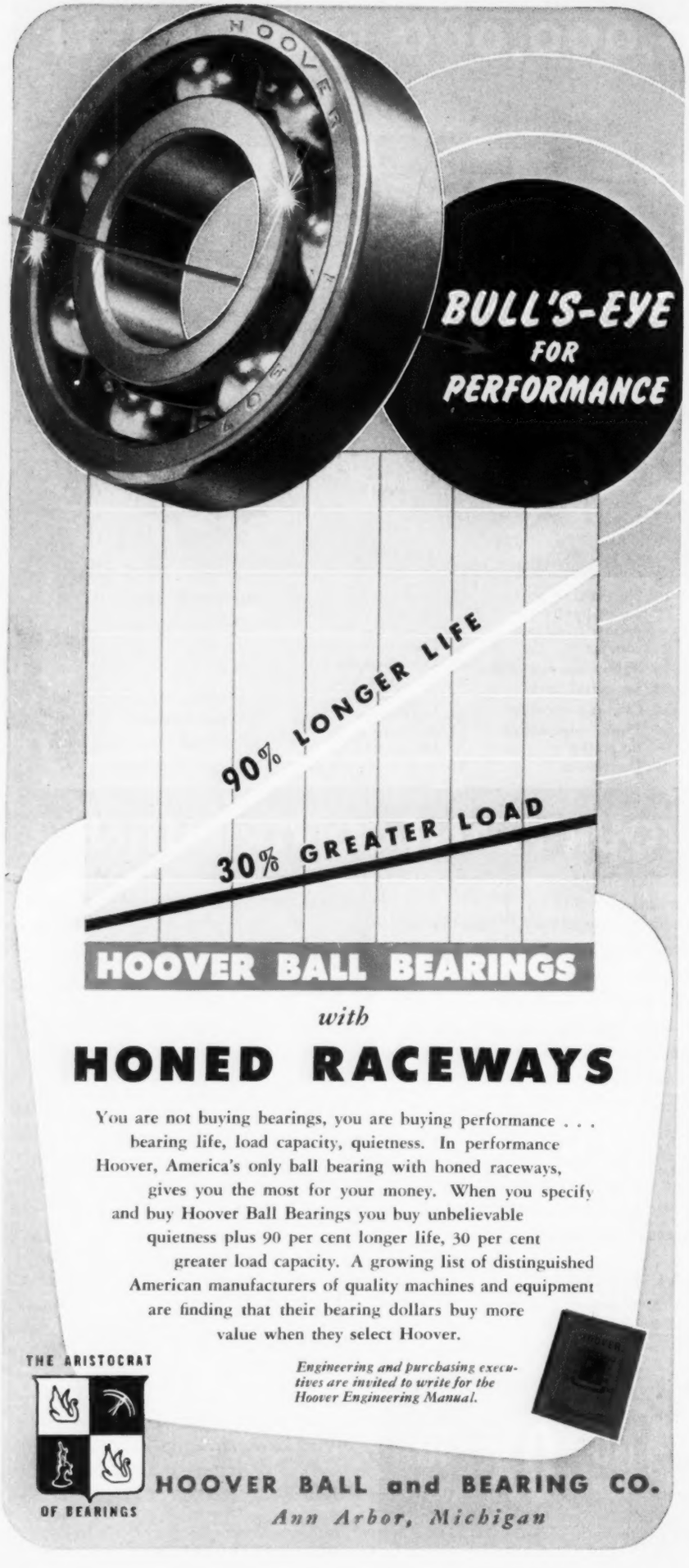
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Graphite Lube for Degreasers

Colloidal graphite, a microscopically fine substance which lubricates effectively from sub 0 to 3000° F plus has been determined to be a satisfactory lubricant for conveyor chains passing through vapor degreasers. Other lubricants are removed in the passage of the chain through the degreaser tank.

Because of the chemical inertness of colloidal graphite, such as made by Acheson Colloids Corp., Port Huron, Mich., it is unaffected by degreaser solvents. This company recommends that it be disbursed in alcohol, the latter acting as a medium to transport the graphite to the points requiring lubrication. By applying immediately after the one chain leaves the degreaser tank, the alcohol has evaporated before the chain completes its cycle and returns to the tank.

Exhibit Shows Improved Devices

Newly developed and improved instruments for central stations and power house applications will be exhibited by Brown Industrial Division, Minneapolis-Honeywell Regulator Co., Philadelphia, at the National Exposition of Power and Mechanical Engineering in New York, Nov. 27 to Dec. 2. A new linear flow meter will be in operation from a closed system of circulating water through a glass pipe. Also planned is a Kelvin bridge recorder to record rotor temperatures, said to be the first to make use of electronic principles for such an application.

Besides a frequency meter, another electronic instrument to measure frequency of power generation, the exhibit will include pneumatic transmission instruments, a two-pen strip chart frequency meter, a loader recorder, a conductivity meter and the Microsen electronic instrument for measuring fluid pressure, and others.

Rainbow Hued Aluminum Chain

Sparkling like the early morning dew and offered in the same myriad of colors is aluminum chain which is said to have high corrosion, abrasion and hardness resistance. Made by Colonial Alloys Co., Philadelphia, the chain is finished by the Mirrodip JF Electrodized process to simulate gold, silver, nickel, brass, copper, and chromium; it is also offered in red, blue, gray, green, brown, black and various pastel shades. From the smallest diameter of bead type to the largest Elwel twist type of wire chain are processed in long lengths and packaged in hanks and on spools.

CALENDAR OF MEETINGS

† *Denotes first listing in this column.*

Oct. 31-Nov. 10, Short course in quality control by statistical methods, State University of Iowa, Iowa City, Iowa. Further information may be obtained from Lloyd A. Knowler, co-director, quality control program, c/o university.

Nov. 1-2, Porcelain Enamel Institute: 19th annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va. Institute headquarters, 1010 Vermont Ave. N. W., Washington 5, D. C.

Nov. 1-2, Pennsylvania Society of Training Directors: 4th annual conference, Community Building, Hershey, Pa. General chairman: T. G. Newton, Armstrong Cork Co., Lancaster, Pa.

Nov. 1-3, American Society of Body Engineers: 5th annual technical convention, Rackham Memorial Building, Detroit. Headquarters of society at 100 Farnsworth, Detroit 2.

Nov. 1-3, Industrial Management Society, 14th Annual National Time and Motion Study and Management Engineering Clinic, Sheraton Hotel, Chicago. Society headquarters: 35 E. Wacker Dr., Chicago.

Nov. 2-3, Society of Automotive Engineers: Diesel engine meeting, Hotel Knickerbocker, Chicago. Society headquarters are at 29 W. 39th St., New York 18.

Nov. 2-3, Third Annual Metals Casting Conference: Sponsored by Michiana and Central Indiana Chapters, American Foundrymen's Society. To be held at Purdue University, Lafayette, Ind.

Nov. 2-3, Eighth Annual Conference on X-ray and Electron Diffraction: To be held at Mellon Institute for Industrial Research, Pittsburgh 13.

Nov. 2-4, Industrial Management Conference: Fourth annual meeting, University of Missouri, Columbia. Additional information from university Office of Public Information, Room 102, Building T-3, Columbia, Mo.

†**Nov. 6-7, National Association of Suggestion Systems:** Annual convention, Drake Hotel, Chicago. Association headquarters are at 122 S. Michigan Ave., Chicago 3.

†**Nov. 8-11, Manufacturers of Meehanite Castings:** Annual convention, Hotel Knickerbocker, Chicago. Sponsored by Meehanite Metal Corp., New Rochelle, N. Y.

†**Nov. 9-10, Society of Automotive Engineers:** Fuels and lubricants meeting, the Mayo, Tulsa, Okla. Society headquarters are at 29 W. 39th St., New York 18.

†**Nov. 10, American Iron & Steel Institute:** Regional technical meeting, Mark Hopkins Hotel, San Francisco. AISI is located at 350 Fifth Ave., New York 1.

†**Nov. 12-15, National Automatic Merchandising Association:** Annual convention and exhibit, Palmer House, Chicago. Association offices: 7 S. Dearborn St., Chicago 3.

†**Nov. 17, Illinois Mining Institute:** 58th annual meeting, Hotel Abraham Lincoln, Springfield, Ill. Institute is located at 28 E. Jackson Blvd., Chicago 4.

†**Nov. 27-Dec. 2, American Society of Mechanical Engineers:** 19th National Exposition of Power and Mechanical Engineering and annual meeting, Grand Central Palace, New York. Exposition headquarters: Grand Central Palace, New York 17.

†**Dec. 1, American Iron & Steel Institute,** regional technical meeting Drake Hotel, Chicago. AISE headquarters: 350 Fifth Ave., New York 1.

†**Dec. 7-9, Electric Furnace Steel Committee, AIME:** 8th annual meeting William Penn Hotel, Pittsburgh. AIME headquarters: 29 W. 39th St., New York 18.

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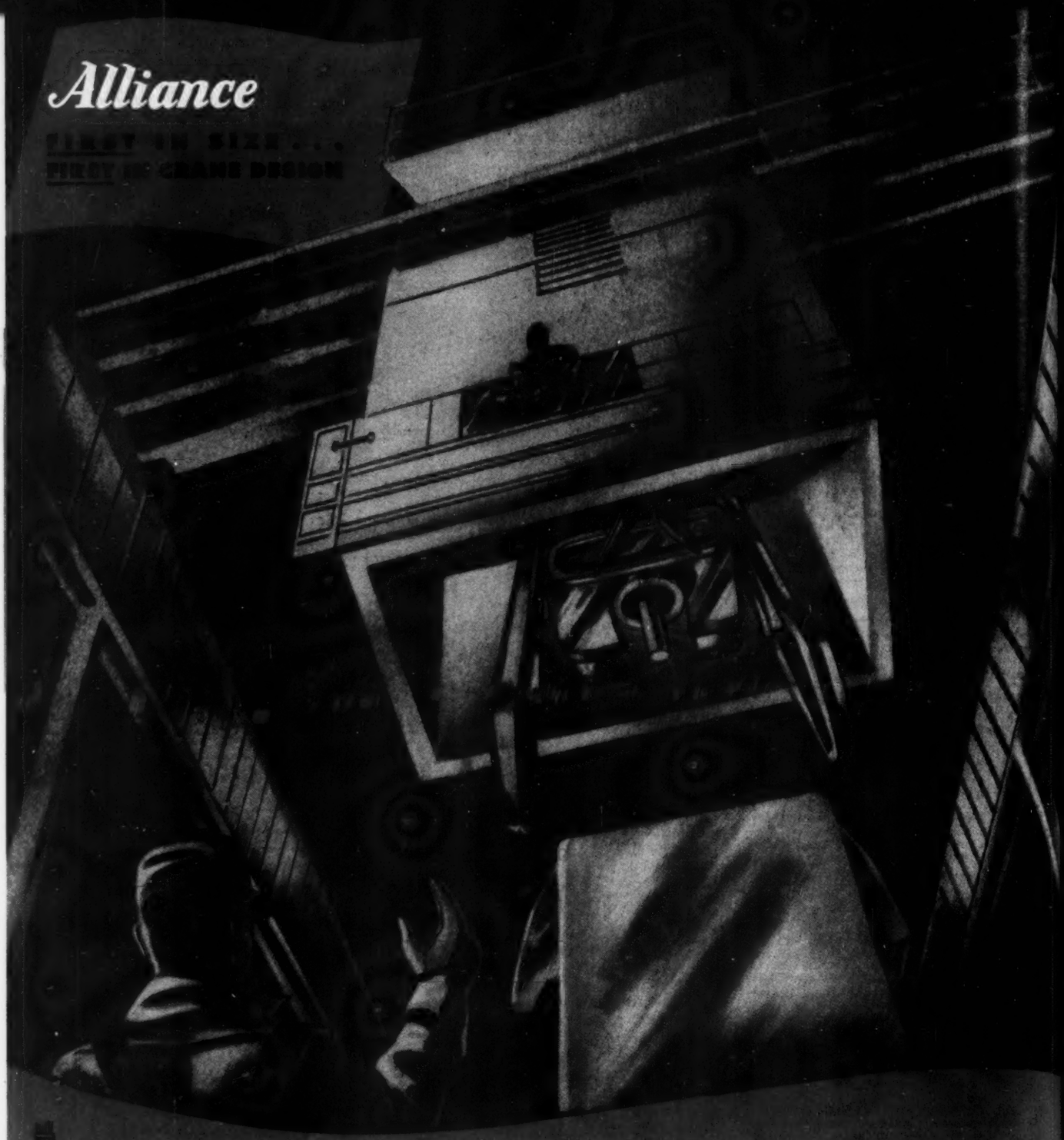

Shown here is a 250-ton push-pull, screw-type Stripper crane, used for stripping both small end-up ingots, and large end-up ingots with hot tops. An added feature for faster handling is the retractable bull nose; with this, no adjustments are necessary when stripping ingots of various types and sizes. Alliance builds this Stripper crane in various capacities up to 800 tons, with a safety factor of 5. If your installation does not warrant a stripper of this kind, ask us about our impact stripper, which makes use of the most reliable of all forces, gravity. The Alliance Machine Company builds all types—all sizes—to move heavy loads safely, quickly, economically. Always rely on Alliance to give your plant dependable, extra lifting power.

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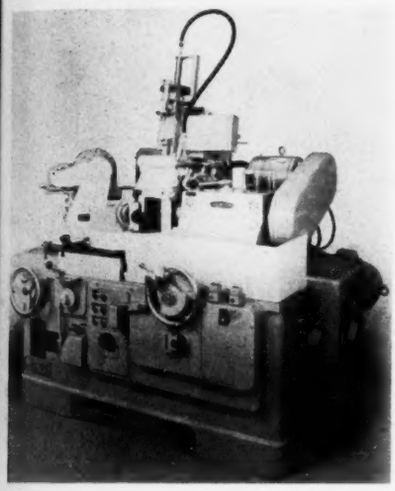
New Products and Equipment

Valve Grinder Is Semiautomatic

Combining high speed production with semiautomatic operation, high precision and fine finish is a valve grinder offered by Norton Co., Worcester, Mass. It will process valves having face angles of 0 through 62½ degrees, with face diameters of 7/16 through 3½ inches and with stem diameters up to and including ¾-inch.

Operating effort is confined to loading the machine and to movement of



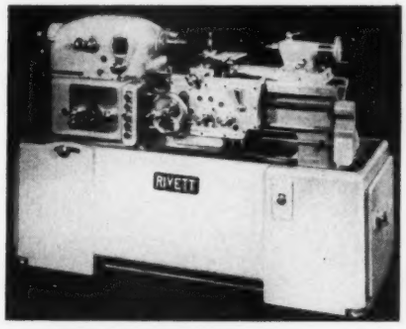
a single control lever that clamps workpiece in work head collet, starts the grinding cycle, rotation of the workpiece and coolant flow. Adjustment for fine feed becomes operative at any point in wheel feed cycle from 0.005-inch oversize to zero. Termination of cycle on completion of grind is by an electric timer set for particular time period necessary to obtain size and finish desired.

Check No. 1 on Reply Card for more Details

Takes Both Light and Heavy Cuts

Adaptable to both sensitive instrument work and heavy carbide cutting is the model 1020S precision toolroom lathe offered by Rivett Lathe & Grinder Inc., Brighton 35, Mass. It will handle any toolroom turning within its 12½-inch swing and 20-inch centers. Contributing to its power is a 40 per cent heavier weight of 4000 pounds, headstock back-gearing at speeds ranging from 22 to 400 rpm and a bed with 12¾-inch wide steel ways.

Precision features include a three-bearing spindle mounting, free spindle by direct belt drive operating at infinite speeds up to 3600 rpm, collets mounting directly in spindle without adaptor, hardened and ground feed screws, antifriction bearings throughout and a gear box providing 72 feeds and 84 threads. Pushbutton controls for variable speed drive and



electric carriage, a neutral clutch to stop the spindle without stopping the drive, and a handwheel for turning the headstock spindle at operating convenience are incorporated in the design.

Check No. 2 on Reply Card for more Details

Four-Point Eccentric Presses

E. W. Bliss Co., Canton, O., is offering a line of eccentric presses designated SU-4 after the Joint Industry Conference system for single action, underdriven, four-point equipment. Sixty-three standard sizes have been engineered with capacities ranging from 300 to 3000 tons and

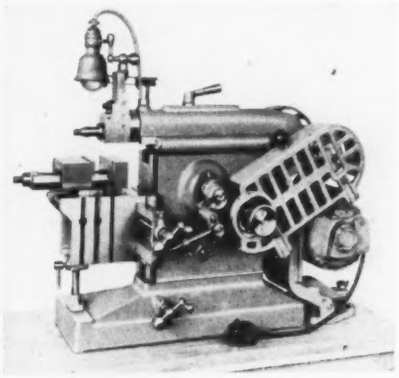
bed areas from 72 x 48 to 300 x 108 inches, right to left by front back. All bearings are arranged to permit the shaft to be dropped straight down. Presses are double-geared with the driving eccentrics cast integral with the main drive gears. Gears may be arranged to run in oil.

Fast acting single disk pneumatic friction clutch is standard equipment. It requires no adjustment for wear. Friction plates are arranged for rapid heat dissipation. Long connections result in small minimum side thrust. Sideposts are fully skirted at the connection joint and are arranged with internal preshrunk steel tie-rods that absorb the work load. Motor driven slide adjustment mechanism meshes with internal threads on the top of the side posts, allowing extremely long adjustment where desired by lengthening the threaded portion of the posts.

Check No. 3 on Reply Card for more Details

Small Work Metal Shaper

Savings in time, labor, floor space, power and setup expense may be realized from use of a 7-inch precision metal shaper developed by Delta Power Tool Division, Rockwell Mfg. Co., Milwaukee 1, Wis. For many



jobs, setting up takes as little as 2 to 3 minutes. All-round tool and die or continuous duty operations may be performed.

Machine has four speeds of 40, 70, 115 and 180 strokes per minute. Extreme length of stroke is 7¾ inches. Table has a horizontal travel of 9½ inches and a vertical travel of 4½ inches. Feed ranges from 0.003 to 0.018-inch. Adjustable tool head is graduated from 0 to 90 degrees for angle work and has a vertical travel of 3¼ inches. Maximum vice opening is 4¼-inches. Accessories and attachments include a portable cabinet, rotary table, index centers, keyway cutting tools and on angle plate.

Check No. 4 on Reply Card for more Details

Layout Protector Table

Designed for use with patterns, core boxes, castings, etc., to facilitate checking or layout without disturbing the original setup is the No. 30 layout protractor table offered by Spo

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NOW! END SLIPPING ACCIDENTS WITH A.W. ALGRIP

(POSITIVE NON-SLIP FLOOR PLATE)

Non-slip—Even on Steep Inclines

Even distribution of abrasive particles shown by magnifying glass.

Prevents slipping on factory floors, walkways, etc.

Protects workmen and vehicles from slipping on ramps and loading platforms.

REVOLUTIONARY, NEW ABRASIVE ROLLED STEEL FLOOR PLATE

Now, for the first time you can prevent dangerous, expensive slipping accidents with A.W. ALGRIP ABRASIVE *Rolled Steel* Floor Plate. It's the non-slip floor plate that safety engineers, architects, purchasing agents and plant owners have always wanted.

A.W. ALGRIP is made by rolling abrasive grain as an integral part of the upper portion of *steel* plate. It retains its non-slip qualities for a lifetime, because as the surface wears new abrasive particles are constantly exposed.

Install A.W. ALGRIP for positive non-slip protection in all areas subjected to oil, grease or water on which men walk or climb . . . loading platforms, ramps, washroom floors, fire escapes, running boards and similar surfaces. A.W. ALGRIP prevents slipping even on steep inclines. And remember it's low in cost, easy to install, requires no maintenance, and is resistant to heat, fire and heavy traffic.

Write or use coupon for complete information about this amazing, new, non-slip floor plate now.

A.W. ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE

A Product of ALAN WOOD STEEL COMPANY

Conshohocken (18), Penna.

Gentlemen: *Please rush me complete information about A.W. ALGRIP*

Name _____ *Title* _____

Company _____ *Street Address* _____

City _____ *State* _____

Other Products: PERMACLAD Stainless Clad Steel • A.W. SUPER-DIAMOND Floor Plate • Billets • Plates • Sheets • Strip • (Alloy and Special Grades)

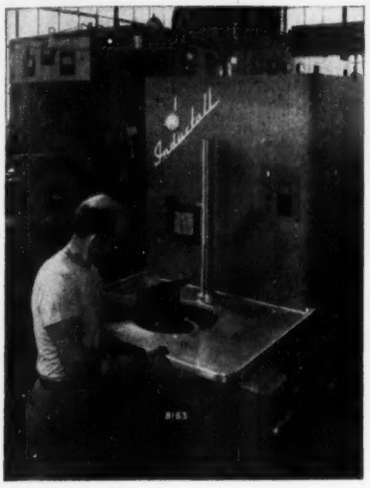
NEW NEW NEW

chucking and carriage positioned by cut-tooth racks. Model shown handles pipe from 1¼ to 6 inches in diameter.

Check No. 6 on Reply Card for more Details

RF Gear Hardening Machine

Spur cluster integral spindle gears and shafts may be hardened by the Inductuall radio-frequency gear hardening machine offered by Westinghouse Electric Corp., Pittsburgh 30, Pa. It is used with a vacuum tube radio-frequency generator, a 10,000-cycle motor-generator set and associated equipment. Machine carries each gear through an automatic cycle for either through or contour hardening. Uniformity of hardening results from mechanical gear handling system and precise electrical timing of preheat, heat-treat and quench operations. Automatic loading and unloading magazines are available as optional accessories.



Check No. 7 on Reply Card for more Details

Small Crane Is Tractor Mounted

Mounted on a Minneapolis Moline model UTI tractor and having a high lift capacity of 5 tons is the Handi-Crane, a development of Clyde Iron Works Inc., Duluth 1, Minn. Boom is raised and lowered by means

Reasons why another

COUPLER HOUSING *switched to*

UNITCASTINGS!

This warehouse trailer coupler housing is subjected to considerable stress and strain in handling materials for general factory use. As a weldment, it not only used 40 inches of welding, slowing down unit production, but lacked eye appeal.

After the switch to Unitcastings, production costs dropped 25%, trailer performance improved, a streamlined appearance added more "saleability" to the product . . . and with an eye to future repeat orders, Unitcastings created better customer relationships. To build quality into your own product, trust it to UNITCASTINGS—they're better.

UNITCAST
Corporation
QUALITY STEEL CASTINGS

Give us a chance to offer a "cast steel" answer for your parts problem. Our suggestions while your product is in the design stage will pay continuous dividends. Write or call today. Unitcast Corporation, Steel Casting Division, Toledo 9, Ohio. *In Canada:* Canadian-Unitcast Steel, Ltd., Sherbrooke, Quebec.

UNITCASTINGS ARE FOUNDRY ENGINEERED

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of a hydraulic cylinder that allows safe and accurate control independent of other operations.

An 18 or 24-foot boom rotates 320 degrees and has an attached counterweight so that the load can be swung at a constant radius with safety. Hydraulic stabilizers on the front end provide additional stability when handling loads over the side. It has a short turning radius and special roller bearing steering mechanism. Turning radius is 17 feet 6 inches. Five speeds are provided up to 12.5 mph.

Check No. 8 on Reply Card for more Details

Rotates and Dumps Metal Parts

Capable of picking up and dumping heat treated metal parts is a device for attachment to lift trucks made by Towmotor Corp., Cleveland, O. A variation of the revolving barrel grab, it picks up a pot of castings or other materials after removal from the annealing oven, carries them to their destination where they are dumped by inverting the pot.

Shown mounted on a model LT-48 Towmotor lift truck, the annealing pot dumper has a capacity of 2100 pounds at 30-inch load center. Height of lift is 108 inches and over-all lowered height is 83½ inches. To protect the lift plunger from pitting

and scoring by dust and abrasives in the air, the unit is equipped with a tubular steel hoist protector.

Check No. 9 on Reply Card for more Details

Powder Metal Press Simplified

Cam-operated for the production of various types of parts, cemented carbides, porous bearings and other powder metal pieces is the S-5 40-ton press offered by F. J. Stokes Machine Co., 5900 Tabor Road, Philadelphia 20, Pa. Design largely eliminates necessity of changing cam inserts and changes in setup are accomplished in a short period of time. Single handwheel adjustment sets the machine for the proper compression level of the lower punch, automatically taking care of the ejection level. A lower plunger spring pulldown eliminates tendency for lower punch to hang in the die.

Machine can also be furnished with an adjustable secondary lower punch and/or a movable core rod in addition to a stationary core rod. Clamp ring is used instead of a lock nut for accuracy in alignment. An optional agitated feed shoe speeds up production of pieces having deep thin sections difficult to fill. Press may be used for sizing or coining as well as for forming through the use of a special attachment. When used as a sizing press, parts may be fed either by hand or automatically at full speed.

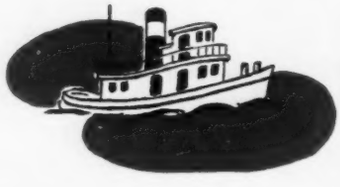
Check No. 10 on Reply Card for more Details

Packaged Power Unit

Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill., has developed the Motogear, a compact, enclosed helical gear drive with separate standard motor, flexibly coupled and mounted on one welded steel base

STEEL TODAY...
STEEL for the FUTURE...

AVONDALE

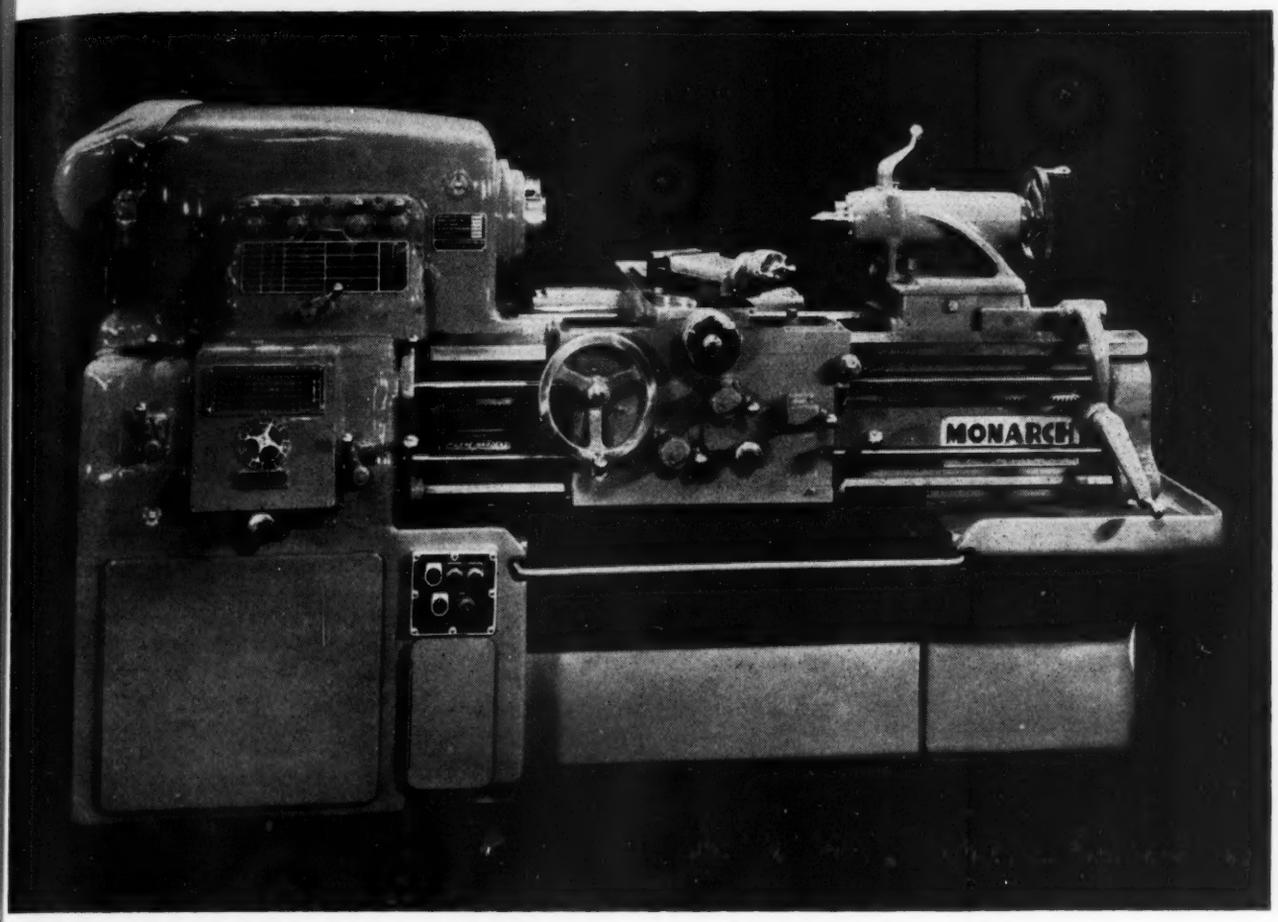


More and more in the marine industry, especially at AVONDALE MARINE WAYS . . . *steel* is used! In building and repairing ships of all types, in the fabrication of equipment for offshore oil drilling, in all the work AVONDALE does—*steel* is the material most used!

AVONDALE MARINE WAYS, INC.

RIVER FRONT, NEW ORLEANS DISTRICT
MAILING ADDRESS: WESTWEGO, LOUISIANA

QUICK REPAIR PLANT . . . HARVEY, LA.
MAIN PLANT: AVONDALE, LA.



PRECISION POWER WHERE IT COUNTS —at its best on Series 60 Lathes

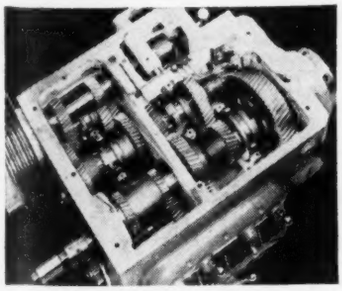
You'll get peak power—and long life at original accuracy in the—headstock of every Series 60 Lathe. Its extremely efficient design is characterized by two outstanding features, both pioneered by Monarch.

First, is the use of helical gears—all made of hardened alloy steel, and with ground or shaved tooth contours. The result is quieter, more efficient operation, with less waste power, less wear (and, as a result less down time).

Equally important is the extra-wide design of the Series 60 headstock gears. Not only is there more tooth contact at all times, providing more efficient transmission of power—but shifting is easier and faster (with less gear wear) by means of clutches instead of shifting the gears themselves.

An almost integral part of Monarch's superior headstock design is the American Standard Camlock Spindle Nose—a distinct advantage because of easier, faster, more rigid, more accurate mounting of chucks and fixtures.

These and many other design and construction features mean more savings with Monarch's Series 60 Machines, available in 14″, 16″ and 20″ sizes. For complete information ask for Booklet 1113.



Monarch Series 60 Headstock Gearing

You'll Save on Maintenance and Operating Expense With These Series 60 Features:

1. Totally-enclosed gearbox and end gearing—preserves accuracy.
2. Automatic pressure lubrication—insures long life at original efficiency.
3. All anti-friction bearings—for peak power and less maintenance.
4. Hardened, ground or shaved, wide helical gears in headstock—for precision power, easier shifting.
5. American Standard Camlock Spindle Nose—for quick, rigid chuck and fixture mounting.
6. Flame-Hardened and Ground Bedways—preserves accuracy—proved on over 25,000 Monarch Lathes.
7. Induction hardening of many critical parts—for long, trouble-free life.

ACCURACY · ECONOMY · LONG LIFE

Monarch TURNING MACHINES

THE MONARCH MACHINE TOOL CO. • SIDNEY, OHIO

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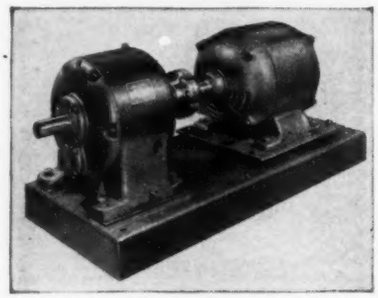
plate. A movable plate between motor feet and welded base plate provides for convenient adjustment, should shaft realignment be necessary.

Units are built in a variety of sizes, in double or triple reductions, and in a range of ratios and horsepowers. Input and output shafts are con-



centrically in line. Helical gear drive used is similar to that employed on the Link-Belt Gearmotor, but on the Motogear, the motor is coupled to input shaft and mounted on base plate instead of being integrally secured to side of drive. Helical gear drive is also available as a separate self-contained unit without the motor.

Check No. 11 on Reply Card for more Details

• • •

SHIFTING DEVICE: V-Belt Clutch Co., Los Angeles, Calif., offers a new shifting device for their Ball-Lok clutch which simplifies installation of entire assembly, reduces misalignment and wear of shift lever. This sleeve enables the user to begin immediate operation of the clutch when it is installed on a gas engine or other power plant.

Check No. 12 on Reply Card for more Details

STEP VOLTAGE REGULATOR: Transformer and Allied Product Divisions, General Electric Co., Schenectady 5, N. Y., has redesigned the MLT 32 step voltage regulator. Providing three-phase regulation in thirty two ⅝-per cent steps, the range of ratings of the new regulator has been increased to include sizes up to and including 2500 kva, 69,000 v.

Check No. 13 on Reply Card for more Details

EXTRA LENGTH DRILL: Cyclo-twist double spiral fluted drill in extra lengths up to 36 inches is offered by New England Carbide Tool Co. Inc., Cambridge 39, Mass. These drills are available from 3/16 to 1-inch in diameter. The two spiral flutes run from both cutting edges to shank end, regardless of length. This feature, coupled with the fact that the drill body is the same diameter as the carbide, positively expels dust as it drills.

Check No. 14 on Reply Card for more Details

MICROFILM READER: An all purpose portable microfilm reader for 16 and 35 mm film widths is announced by Griscombe Products Inc., New York 7, N. Y. Designed primarily for desk top film reading on a provided for "fold-away" screen, it can be used for projecting microfilm on vertical screens or light colored walls for group reading.

Check No. 15 on Reply Card for more Details

LIVE CENTER: Equipped with No. 3 precision Timken roller bearings and designed to accommodate changable, tapered inserts, the live center introduced by Arrow Tool & Reamer Co., Detroit 9, Mich., features a simple adjusting screw that permits adjustment for wear. It is available in Nos. 1, 2, 3, 4 and 5 Morse taper.

Check No. 16 on Reply Card for more Details

LENS CLEANING STATION: Carhoff Co., Cleveland, O., offers a No-Fog cleaning station. Each station in furnished complete with a bottle of new No-Fog liquid, spray pump and a box of no-lint tissue.

Check No. 17 on Reply Card for more Details

FLUORESCENT SCREW-IN "BULB": Lite-Mite "bulb", a fluorescent light made by Stocker & Yale, Marblehead, Mass., may be screwed into any ordinary lamp socket. The shade rotates 330 degrees to focus as desired. The "bulb" contains two 4-watt fluorescent lamps and all control components entirely within the 2 x 6-inch shade.

Check No. 18 on Reply Card for more Details

EXTENDS APPLICATION: Square D Co., Detroit 11, Mich., has extended the application of type MO 20 multi-breaker load center with the availability of a split main bus. Bus has been segregated to allow the control of all lighting circuits by a main breaker while other heavier circuits are controlled by parallel main breakers.

Check No. 19 on Reply Card for more Details

LIGHTWEIGHT SAFETY GOGGLE: Designed to provide eye protection from flying particles, the F4100 Ful-Vue metal goggle is introduced by American Optical Co., Southbridge, Mass. The lightweight eyewire is flat instead of round. End pieces are streamlined and incorporate a friction joint with wide bearing surfaces minimizing temple drop. Screw heads are countersunk for nonsnagging security.

Check No. 20 on Reply Card for more Details

LOW PRESSURE CYLINDERS: Completely redesigned 14 and 16-inch low pressure cylinders for 125 psi, air, or 160 psi, hydraulic are offered by Hannifin Corp., Chicago 24, Ill. Cup type pistons and chevron-type gland packings make them suitable for air, oil or water service.

Check No. 21 on Reply Card for more Details

TOGGLE CLAMP: Known as De-Sta-Co No. 235-U, a new, quick-acting toggle clamp for production workholding fixture is announced by Detroit Stamping Co., Detroit 3, Mich. It features holding pressures up to 650 pounds. Clamping bar moves into a fully-retracted vertical position when clamp is opened, allowing maximum clearance for speedy insertion and removal of work.

Check No. 22 on Reply Card for more Details

INTERCHANGEABLE JAW FACES: Vi-Speed models 457R and 457R-6 with interchangeable jaw faces are offered by Van Products Co., Erie, Pa. Faces are hardened tool steel with either serrated or smooth surfaces. They are firmly attached to jaw castings by spring tempered pins driven into holes drilled in a manner to bind both faces and pins.

Check No. 23 on Reply Card for more Details

ELECTRONIC BALANCE: Metrogram balance, available from Arthur S. LaPine & Co., Chicago 10, Ill., is featured in four electronic models handling loads from 5 to 25 pounds and sensitiveness from 20 to 200 milligrams. An optical flat bearing surface is used and a special knife edge arrangement is employed as well as a novel flexure member for restraining movement of the knife edge relative to the flat bearing surface.

Check No. 24 on Reply Card for more Details

FOR MORE INFORMATION
on the new products and equipment in this section, fill in a card. It will receive prompt attention.

TIGHT COOPERAGE HOOP

Atlanta A11	*3.80*
Riverdale,Ill. A1	3.40
Sharon,Pa. S3	3.90
Youngstown C3	3.40

WIRE, MB Spring, High Carbon

Aliquippa,Pa. J5	5.90
Alton,Ill.(1) L1	5.90
Bartonville,Ill. (1) K4	5.90
Buffalo W12	5.90
Cleveland A7	5.90
Donora,Pa. A7	5.90
Duluth A7	5.90
Fostoria,O. S1	6.20
Johnstown,Pa. B2	5.90
Los Angeles B3	6.85
Millbury,Mass.(12) N6	6.20
Monessen,Pa. P7, P16	5.90
Palmer,Mass. W12	6.20
Pittsburg,Calif. C11	6.85
Portsmouth,O. P12	5.90
Roebling,N.J. R5	6.20
So.Chicago,Ill. R2	5.90
SparrowsPoint,Md. B2	6.00
Struthers,O. Y1	5.90
Trenton,N.J. A7	6.20
Waukegan,Ill. A7	5.90
Williamsport,Pa. B2	6.00
Worcester A7,J4,T6,W12	6.20
Worcester,Mass. N6	6.20

WIRE, Cold-Rolled Flat

Anderson,Ind. G6	5.70
Buffalo W12	5.35
Cleveland A7	5.35
Crawfordsville,Ind. M8	5.35
Dover,O. G6	5.70
Fostoria,O. S1	*6.00*
Kokomo,Ind. C16	5.35
FranklinPark,Ill. T6	5.70
Massillon,O. R8	5.35
Monessen,Pa. P16	5.35
Monessen,Pa. P7	5.60
Pawtucket,R.I.(12) N8	6.00
Trenton,N.J. R5	5.65
Worcester A7, T6, W12	5.65

WIRE, Fine and Weaving (8-in. Coils)

Bartonville,Ill.(1) K4	8.45
Buffalo W12	8.45
Chicago W13	8.45
Cleveland A7	8.45
Crawfordsville,Ind. M8	8.45
Fostoria,O. S1	8.90
Johnstown,Pa. B2	8.45
Kokomo,Ind. C16	8.45
Monessen,Pa. P16	8.45
Palmer,Mass. W12	8.75
Portsmouth,O. P12	8.45
Roebling,N.J. R5	8.75
Waukegan,Ill. A7	8.45
Worcester,Mass. A7, T6	8.75

WIRE, Tire Bead

Bartonville,Ill.(1) K4	10.55
Monessen,Pa. P16	10.80
Roebling,N.J. R5	10.80

WIRE, Manufacturers Bright, Low-Carbon

AlabamaCity,Ala. R2	4.50
Aliquippa,Pa. J5	4.50
Atlanta A11	*4.85*
Alton,Ill.(1) L1	4.50
Bartonville,Ill.(1) K4	4.50
Buffalo W12	4.50
Chicago W13	4.50
Cleveland A7, C20, R2	4.50
Crawfordsville,Ind. M8	4.60
Donora,Pa. A7	4.50
Duluth A7	4.50
Fairfield,Ala. T2	4.50
Fostoria,O. (24) S1	5.00
Houston S5	4.90
Johnstown,Pa. B2	4.50
Joliet,Ill. A7	4.50
KansasCity,Mo. S5	5.10
Kokomo,Ind. C16	4.85
Los Angeles B3	5.45
Minnequa,Colo. C10	4.75
Monessen,Pa. P7	4.75
Newark, 6-8ga. I-1	5.15
No. Tonawanda B11	4.50
Palmer,Mass. W12	4.80
Pittsburg,Calif. C11	5.45
Portsmouth,O. P12	4.50
Rankin,Pa. A7	4.50
So.Chicago, Ill. R2	4.50
So.SanFrancisco C10	5.45
SparrowsPoint,Md. B2	4.60
Sterling,Ill.(1) N15	4.80
Struthers,O. Y1	4.50
Torrance,Calif. C11	5.45
Waukegan,Ill. A7	4.50
Worcester,Mass. A7	4.80
Worcester,Mass. T6	4.95

WIRE, Upholstery Spring

Aliquippa,Pa. J5	5.55
Alton,Ill.(1) L1	5.55
Buffalo W12	5.55
Cleveland A7	5.55
Donora,Pa. A7	5.55
Duluth A7	5.55
Johnstown,Pa. B2	5.55
LosAngeles B3	6.50
Monessen,Pa. P7, P16	5.55
NewHaven,Conn. A7	5.85
Palmer,Mass. W12	5.85
Pittsburg,Calif. C11	6.50
Portsmouth,O. P12	5.55
Roebling,N.J. R5	5.85
So.Chicago,Ill. R2	5.55
SparrowsPoint,Md. B2	5.65
Torrance,Calif. C11	6.50
Trenton,N.J. A7	5.85
Waukegan,Ill. A7	5.55
Worcester,Mass. A7	5.85

WIRE, Galv'd ACSR for Cores

Bartonville,Ill. K4	8.15
Monessen,Pa. P16	8.15
Roebling,N.J. R5	8.45
SparrowsPoint,Md. B2	8.25

ROPE WIRE	Mild Plow	Plow	Imp. Plow
Bartonville,Ill. K4	8.05	8.05	8.30
Buffalo W12	8.05	8.05	8.30
Cleveland A7	8.05	8.05	8.30
Donora,Pa. A7	8.05	8.05	8.30
Fostoria,O. S1	8.35	8.35	8.60
Johnstown,Pa. B2	8.05	8.05	8.30
Monessen,Pa. P16	8.05	8.05	8.30
Monessen,Pa. P7	8.30	8.30	8.55
NewHaven,Conn. A7	8.35	8.35	8.60
Palmer,Mass. W12	8.35	8.35	8.60
Portsmouth,O. P12	8.05	8.05	8.30
Roebling,N.J. R5	8.35	8.35	8.60
SparrowsPoint,Md. B2	8.15	8.15	8.40
Struthers,O. Y1	8.05	8.05	8.30
Trenton,N.J. A7	8.35	8.35	8.60
Waukegan,Ill. A7	8.05	8.05	8.30
Williampsort,Pa. B2	8.15	8.15	8.40
Worcester,Mass. J4, T6	8.35	8.35	8.60

WIRE, Merchant Quality (6 to 8 gage)

	An'ld Stone	Galv. Stone
AlabamaCity R2	5.35	5.60
Aliquippa J5	5.35	5.80
Atlanta A11	*5.70*	*5.95*
Bartonville(19) K4	5.35	5.80
Buffalo(31) W12	4.50	...
Cleveland A7	5.35	5.60
Crawfordsvil. M8	5.45	5.95
Donora A7	5.35	5.60
Duluth A7	5.35	5.60
Fairfield T2	5.35	5.60
Houston,Tex. S5	5.75	6.00
Johnstown B2	5.35	5.60
Joliet,Ill. A7	5.35	5.60
KansasCy.Mo. S5	5.95	6.20
Kokomo C16	5.70	5.95
LosAngeles B3	6.30	...
Minnequa C10	5.60	6.10
Monessen P7	5.60	5.85
Palmer(31) W12	4.80	...
Pitts.,Cal. C11	6.30	6.55
Prtsmth.(18) P12	5.35	5.60
Rankin A7	5.35	5.60
So.Chicago R2	5.35	5.60
So.S.Fran. C10	6.30	6.80
SparrowsPt. B2	5.45	5.70
Sterling,Ill.(1)N15	5.65	5.85
Struthers,O. Y1	5.35	5.60
Torrance,Cal. C11	6.30	...
Worcester A7	5.65	5.90

WIRE (16 gage)

	An'ld Stone	Galv. Stone
Aliquippa J5	9.80	11.50
Bartonville(1) K4	9.80	11.50
Cleveland A7	9.80	11.30
Crawfrdvil. M8	9.80	11.30
Fostoria,O. S1	10.40	12.40
Johnstown B2	9.80	11.30
Kokomo C16	9.80	11.30
Minnequa C10	10.05	12.05
Palmer,Mass. W12	9.80	11.30
Pitts.,Cal. C11	10.15	11.65
Prtsmth.(18) P12	9.80	11.30
SparrowsPt. B2	9.90	11.40
Waukegan A7	9.80	11.30

WIRE, Barbed

	Col.
AlabamaCity,Ala. R2	126
Aliquippa,Pa. J5	130
Atlanta A11	*133*
Bartonville,Ill.(19) K4	126
Crawfordsville M8	135
Donora,Pa. A7	*130*
Duluth,Minn. A7	*130*
Fairfield,Ala. T2	*130*
Houston,Tex. S5	134
Johnstown,Pa. B2	126
Joliet,Ill. A7	*130*
KansasCity,Mo. S5	138
Kokomo,Ind. C16	135
Minnequa,Colo. C10	136
Monessen,Pa. P7	133
Pittsburg,Calif. C11	*150*
Portsmouth,O.(18) P12	126
Rankin,Pa. A7	*130*
So.Chicago,Ill. R2	126
So.SanFran.,Calif. C10	151
SparrowsPoint,Md. B2	128
Sterling,Ill.(1) N15	133

FENCE POSTS

	Col.
ChicagoHts.,Ill. C2	125
Duluth A7	116
Franklin,Pa. F5	125
Huntington,W.Va. W7	125
Johnstown,Pa. B2	125
Joliet,Ill. A7	116
Marion,O. P11	125
Minnequa,Colo. C10	121
Moline,Ill. R2	112
So.Chicago R2	116
Williamsport,Pa. S19	130

WOVEN FENCE, 9-15½ Ga. Col.

AlabamaCity,Ala. R2	116
Ala.City,Ala.,17-18ga.R2	198
Aliquippa,Pa.9-14½ga.J5	120
Atlanta A11	*123*
Bartonville,Ill.(19) K4	116
Crawfordsville,Ind. M8	123
Donora,Pa. A7	*120*
Duluth A7	*120*
Houston,Tex. S5	124
Fairfield,Ala. T2	*120*
Johnstown,Pa. B2	116
Johnstn,17ga.6" B2	190
Johnstn,17ga.,4" B2	193
Joliet,Ill. A7	*120*
KansasCity,Mo. S5	128
Kokomo,Ind. C16	123
Minnequa,Colo. C10	128
Monessen,Pa. P7	123
Pittsburg,Calif. C11	*143*
Portsmouth,O.(18) P12	116
Rankin,Pa. A7	*120*
So.Chicago,Ill. R2	116
Sterling,Ill.(1) N15	118

BALE TIES, Single Loop Col.

AlabamaCity,Ala. R2	113
Atlanta A11	*119*
Bartonville,Ill.(19) K4	113
Chicago W13	113
Crawfordsville M8	120
Donora,Pa. A7	113
Duluth A7	113
Fairfield,Ala. T2	113
Joliet,Ill. A7	113
KansasCity,Mo. S5	125
Kokomo,Ind. C16	120
Minnequa,Colo. C10	118
Pittsburg,Calif. C11	137
So.Chicago,Ill. R2	113
So.SanFran.,Calif. C10	137
SparrowsPoint,Md. B2	115
Sterling,Ill.(1) N15	119

AXLES

Ind.Harbor,Ind. S13	5.25
Johnstown,Pa. B2	5.25

JOINT BARS

Bessemer,Pa. C3	4.40
Fairfield,Ala. T2	4.40
Ind.Harbor,Ind. I-2	4.40
Joliet,Ill. C3	4.40
Lackawanna,N.Y. B2	4.40
Minnequa,Colo. C10	4.40
Steelton,Pa. B2	4.40

STANDARD TRACK SPIKES

Ind.Harbor,Ind. I-2, Y1	5.60
KansasCity,Mo. S5	5.85
Lebanon,Pa. B2	5.60
Minnequa,Colo. C10	5.60
Pittsburgh J5	5.60
Seattle B3	6.10
So.Chicago,Ill. R2	5.60
Struthers,O. Y1	5.60
Youngstown R2	5.60

NAILS & STAPLES, Stock To dealers & mfrs. (7)

	Col.
AlabamaCity,Ala. R2	106
Aliquippa,Pa. (13) J5	106
Atlanta A11	*113*
Bartonville,Ill.(19) K4	106
Chicago,Ill. W13	106
Cleveland A9	111
Crawfordsville,Ind. M8	112
Donora,Pa. A7	106
Duluth A7	106
Fairfield,Ala. T2	106
Galveston,Tex. D7	114
Houston,Tex. S5	114
Johnstown,Pa. B2	106
Joliet,Ill. A7	106
KansasCity, Mo. S5	118
Kokomo,Ind. C16	112
Minnequa,Colo. C10	111
Monessen,Pa. P7	112
Pittsburg,Calif. C11	125
Portsmouth,O. P12	106
Rankin,Pa. A7	106
So.Chicago,Ill. R2	106
SparrowsPoint,Md. B2	108
Sterling,Ill.(1) N15	112
Torrance,Calif. C11	126
Worcester,Mass. A7	112

NAILS & STAPLES, Non-Stock

AlabamaCity,Ala. R2	5.35
Bartonville,Ill.(19) K4	5.35
Crawfordsville,Ind. M8	5.90
Donora,Pa. A7	5.35
Duluth A7	5.35
Johnstown,Pa. B2	5.35
Joliet,Ill. A7	5.35
Kokomo,Ind. C16	5.65
Minnequa,Colo. C10	5.60
Pittsburg,Calif. C11	6.30
Portsmouth,O. P12	5.35
Rankin,Pa. A7	5.35
So.Chicago,Ill. R2	5.35
SparrowsPoint,Md. B2	5.45
Sterling,Ill.(1) N15	5.65
Worcester,Mass. A7	5.65

NAILS, Cut (100 lb keg) To dealers (33)

Conshohocken,Pa. A3	$6.75
Wheeling,W.Va. W10	6.75

TIE PLATES

Fairfield,Ala. T2	4.20
Gary,Ind. C3	4.20
Ind.Harbor,Ind. I-2	4.20
Lackawanna,N.Y. B2	4.20
Minnequa,Colo. C10	4.20
Pittsburg,Calif. C11	4.35
Seattle B3	4.35
Steelton,Pa. B2	4.20
Torrance,Calif. C11	4.35
Weirton,W.Va. W6	4.20

TRACK BOLTS (20) Treated

KansasCity,Mo. S5	9.10
Lebanon,Pa.(32) B2	8.85
Minnequa,Colo. C10	9.10
Pittsburgh O3, P14	9.10
Seattle B3	9.35

RAILS	Std. No. 1	Std. No. 2	Std. All No. 2	TeeRails 60 lb Under
Bessemer,Pa. C3	3.40	3.30	3.35	3.75
Ensley,Ala. T2	3.40	3.30	...	3.75
Fairfield,Ala. T2	...	...	...	3.75
Gary,Ind. C3	3.40	3.30	3.35	...
Huntington,W.Va. W7	...	...	...	3.75
Ind.Harbor,Ind. I-2	3.40	3.30	3.35	...
Johnstown,Pa. B2	...	...	...(16)	3.75
Lackawanna B2	3.40	3.30	...	3.75
Minnequa,Colo. C10	3.40	3.30	...	4.25
Steelton,Pa. B2	3.40	3.30	...	...
Williamsport,Pa. S19	...	...	...	4.00

TOOL STEELS

Grade	Cents per lb	Grade	Cents per lb
Reg. Carbon	21.00	18W,4Cr,3V	126.00
Extra Carbon	24.50	18'V,4Cr,2V,9Co	185.50
Spec. Carbon	29.50-31.50	18W,4Cr,2V,6Co	169.50
Oil Hardening	32.00	18.25W,4.25Cr,1V,4.75Co	156.50
Cr Hot Wrk.	32.00	20.25W,4.25Cr,1.6V,12.25Co	293.50
Hi-Carbon-Cr	57.50	1.5W,4Cr,1V,8.5Mo	71.50
18W,4Cr,1V	100.00	6.4W,4.5Cr,1.9V,5Mo	76.50
18W,4Cr,2V	113.00	6W,4Cr,3V, 6Mo	97.00

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, D4, F2, H4, J3, L3, M14, S8, T7, U4, V2, V3.

Key to Producing Companies

M1 McLouth Steel Corp.
M4 Mahoning Valley Steel
M5 Medart Co.
M6 Mercer Tube & Mfg. Co.
M8 Mid-States Steel & Wire
M9 Midvale Co.
M10 Missouri-Illinois Furnace
M12 Moltrup Steel Products
M13 Monarch Steel Co.
M14 McInnes Steel Co.
N2 National Supply Co.
N3 National Tube Co.
N5 Nelson Steel & Wire Co.
N6 New Eng. HighCarb.Wire
N8 Newman-Crosby Steel
N12 Niles Rolling Mill Co.
N14 Nrthwst.Steel Roll. Mills
N15 Northwestern S.&W. Co.
N16 New Delphos Mfg. Co.
O3 Oliver Iron & Steel Corp.
O4 Oregon Steel Mills
P1 Pacific States Steel Corp.
P2 Pacific Tube Co.
P4 Phoenix Iron & Steel Co.
P5 Pilgrim Drawn Steel
P6 Pittsburgh Coke&Chem.
P7 Pittsburgh Steel Co.
P9 Pittsburgh Tube Co.
P11 Pollak Steel Co.
P12 Portsmouth Division, Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pits.Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., Amer. Chain & Cable
P17 Plymouth Steel Co.
R1 Reeves Steel & Mfg. Co.
R2 Republic Steel Corp.
R3 Rhode Island Steel Corp.
R5 Roebling's Sons, John A.
R6 Rome Strip Steel Co.
R7 Rotary Electric Steel Co.
R8 RelianceDiv.,EatonMfg.
S1 Senaca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S5 Sheffield Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S9 Sloss-Sheffield,S.&.I. Co.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S16 Struthers Iron & Steel
S17 Superior Drawn Steel Co.
S18 Superior Steel Corp.
S19 Sweet's Steel Co.
S20 Southern States Steel
T2 Tenn.Coal, Iron & R.R.
T3 Tenn.Prod. & Chem.
T4 Texas Steel Co.
T5 Thomas Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div. Am. Rad. & Stan. San.
U1 Ulster Iron Works
U4 Universal Cyclops Steel
V2 Vanadium Alloys Steel
V3 Vulcan.Crucible Steel Co.
W1 Wallace Barnes Co.
W2 Wallingford Steel Co.
W3 Washburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W7 W. Va. Steel & Mfg. Co.
W8 West.Auto.Mach.Screw
W9 Wheatland Tube Co.
W10 Wheeling Steel Corp.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel &Wire Co.
W14 Wisconsin Steel Div. International Harvester
W15 Woodward Iron Co.
W16 Worth Steel Co.
W18 Wyckoff Steel Co.
Y1 Youngstown Sheet&Tube

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant. (4) Reinforcing.
(5) Philadelphia del.
(6) Chicago or Birm. base.
(7) To jobbers, 3 cols. lower.
(8) 16 gage and heavier.
(9) 6 in. and narrower.
(10) Pittsburgh base.
(11) Cleveland & Pittsburgh base.
(12) Worcester, Mass. base.
(14) Also wide flange beams.
(15) ½" and thinner.
(16) 40 lb and under.
(17) Flats only.
(18) To dealers.
(19) Chicago & Pittsburgh base.
(20) Deduct 0.25c for untreated.
(21) New Haven, Conn. base.
(22) Del. San Fran. Bay area.
(23) 14 gage.
(24) Deduct 0.20c for finer than 15 gage.
(25) Bar mill bands.
(26) Reinforcing, to fabricators (⅜" bar elec. furn. billet, 5.03c); to consumers, 5.28c.
(27) Bar mill sizes.
(28) Bonderized.
(31) Not annealed.
(32) Untreated.
(33) To jobbers, deduct 20 cents.
(34) 6.70c for cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) 15 gage & lighter; 60" & narrower.
(38) 14 gage & lighter; 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 0.035" and heavier, 0.25c higher.

UNIVERSITY OF MICHIGAN LIBRARIES

STANDARD PIPE, T. & C.

BUTTWELD Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, % —Black— A	B	C	—Galvanized— D	E	F
⅛	5.5c	0.24	36.5	34.5	33.5	4.0	3.5	5.5
¼	6.0	0.42	33.5	31.5	30.5	4.0	3.5	6.5
⅜	6.0	0.57	29.0	27.0	26.0	+1.5	+1.5	2.5
½	8.5	0.85	40.5	38.5	39.5	21.0	19.0	20.0
¾	11.5	1.13	43.5	41.5	42.5	25.0	23.0	24.0
1	17.0	1.68	46.0	44.0	45.0	28.0	26.0	27.0
1¼	23.0	2.28	46.5	44.5	45.5	28.5	26.5	27.5
1½	27.5	2.73	47.0	45.0	46.0	29.0	27.0	28.0
2	37.0	3.68	47.5	45.5	46.5	29.5	27.5	28.5
2½	58.5	5.82	48.0	46.0	47.0	30.0	28.0	29.0
3	76.5	7.62	48.0	46.0	47.0	30.0	28.0	29.0

Column A: Etna, Pa. N2; Monaca, Pa. P9; Sharon, Pa. M6; Butler, Pa. ⅛-⅜", F6; Benwood, W. Va., 1½ percentage points lower on ⅛", 2 points lower on ¼", 3 points lower on ⅜", W10. Wheatland, Pa., 2 points lower on ⅛" through ⅜", W9. Following make ½" and larger: Lorain, O. N3; Youngstown, plus 43% on 3½" and 4", R2; Youngstown Y1; Aliquippa, Pa. J5. Fontana, Calif. K1 quotes 11 points lower on ½" and larger continuous weld and 31% on 3½" and 4".

Columns B & E: Sparrows Point, Md. B2.

Columns C & F: Indiana Harbor, Ind., ½" through 3", Y-1; Alton, Ill. (Lorain, O., base) L1.

Column D: Monaca, Pa. quotes 1½ pts higher on ⅛" and ¼", 2 pts higher on ⅜", 1 pt lower on ½" through 3", P9; Sharon, Pa. M6, quotes 1 pt lower on ⅛", 1½ pts higher on ¼" and ½ pt higher on ⅜" and 3½ pts lower on ½" through 3"; Butler, Pa. ⅛" through ⅜" F6; Benwood, W. Va. W10 except 3½ pts lower on ⅛", 2½ pts lower on ¼", 3 pts lower on ⅜", 2½ lower on ½", 2½ lower on ¾", 2 pts lower on 1" and 1¼", 1½ pts on 1½" through 3"; Wheatland, Pa., except ½ pt lower on ⅛", ¼", W9. Following quote only on ½" and larger: Lorain, N3, quotes 2½ pts lower on ½" and ¾", 2 pts lower on 1" and 1¼", 1½ pts lower on 1½" through 3"; Youngstown, R2, quotes 2½ pts lower on ½" and ¾", 2 pts lower on 1" and 1¼", 1½ pts lower on 1½" through 3", plus 23% on 3½" and 4". Youngstown, Y1; Aliquippa, Pa. J5 quotes 2½ pts lower on ½", 3½ lower on ¾", 1¼", 1½", and 2", 3 lower on 2½" and 3", and 4 lower on 1"; Etna, Pa., N2 quotes 2½ pts lower on ½" and ¾", 2 pts lower on 1" and 1¼", 1½ pts lower on 1½" through 3". Fontana, Calif. K1 quotes 8 pts lower on ½" and larger continuous weld and 15.5% on 3½" and 4".

SEAMLESS AND ELECTRIC WELD Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, % Seamless Black A	Seamless Galv. B	Elec. Weld Black C	Elec. Weld Galv. D
2	37.0c	3.68	36.0	17.5	36.0	17.5
2½	58.5	5.82	39.0	20.5	39.0	20.5
3	76.5	7.62	39.0	20.5	39.0	20.5
3½	92.0	9.20	41.0	22.5	41.0	22.5
4	$1.09	10.89	41.0	22.5	41.0	22.5
5	1.48	14.81	41.0	22.5	41.0	22.5
6	1.92	19.18	41.0	22.5	41.0	22.5

Column A: Aliquippa J5; Ambridge N2; Lorain N3; Youngstown Y1.

Column B: Aliquippa J5 quotes 3 pts lower on 2", 2½ pts lower on 2½-6 in.; Lorain, N3 quotes 1½ pts lower; Youngstown, Y1.

Columns C & D: Youngstown R2.

BOILER TUBES

Net base c.l. prices, dollars per 100 ft, mill; minimum wall thickness, cut lengths 10 to 24 ft, inclusive.

O.D. In.	B.W. Ga.	—Seamless— H.R.	C.D.	Elec. Weld H.R.	C.D.
1	13	12.36	14.39	13.96	13.96
1¼	13	14.63	17.05	14.19	16.54
1½	13	16.17	19.02	15.68	18.45
1¾	13	18.39	21.64	17.84	20.99
2	13	20.61	24.24	19.99	23.51
2¼	13	22.96	27.03	22.27	26.22
2¼	12	25.29	29.76	24.53	28.87
2½	12	27.71	32.58	26.88	31.60
2¾	12	29.36	34.53	28.48	33.49
3	12	30.82	36.27	29.90	35.18

CLAD STEELS

(Cents per pound)

Cladding Stainless	—Plates— Carbon Base 10%	20%	—Strip— Cold-Rolled Carbon Base 10%	Both Sides	—Sheets— Carbon Base 10%	20%	Cu Base Both Sides
302 ...	....	....	....	....	19.75	21.50–24.00	77.00
304 ...	23.50	26.50–28.00	....	....	20.75–23.50	22.50–25.50	77.00
309 ...	29.00	33.50	....	....	....	....	....
310 ...	35.00	39.50	....	....	....	....	144.00
316 ...	28.00	31.00–32 50	....	....	26.00	28.00–34.50	....
317 ...	33.00	37.50	....	....	....	....	....
318 ...	32.00	36.50	....	....	....	....	....
321 ...	25.00	29.50	....	....	23.00	25.00	111.00
347 ...	26.00	29.00–30.50	....	....	24.00	26.00–31.50	130.00
405 ...	19.75	26.25	....	....	....	....	....
410 ...	19.25	25.75	....	....	....	....	....
Nickel .	31.00	41.00	33.50	45.00	....	....	....
Inconel .	39.00	51.00	....	....	....	....	165.00
Monel .	32.00	42.00	....	....	....	....	....
Copper*	....	....	21.70†	27.65‡	....	....	....

* Deoxidized. † 18.20c for hot-rolled. ‡ 24.40c for hot-rolled. Production points for carbon base products: Stainless plates, sheet, Conshohocken, Pa. A3 and New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. W16, Coatesville, Pa. L7 and Washington, Pa. J3; nickel, inconel, monel-clad plates. Coatesville L7; nickel, monel, copper-clad strip, Carnegie, Pa., S18. Production point for copper-base sheets is Carnegie, Pa. A13.

BOLTS, NUTS

CARRIAGE, MACHINE BOLTS

(F.o.b. midwestern plants; per cent off list for less than case lots to consumers)

6 in. and shorter:
- ½-in. & smaller diam.. 23
- ⅝-in. & ⅞-in. 26
- 1-in. and larger 26

Longer than 6 in.:
- All diams. 22

Lag bolts, all diams.:
- 6 in. and shorter 30
- over 6 in. long 28

Ribbed Necked Carriage. 26
Blank 40
Plow 40
Step, Elevator, Tap, and Sleigh Shoe 28
Tire bolts 20
Boiler & Fitting-Up bolts 37

NUTS

	H.P. & C.P. Reg.	Heavy
Square:		
½-in. & smaller	23	23
⅝-in. & ⅞-in..	20	15
1-in.-1½-in. ..	23	10
1⅝ in. & larger	16	10
H.P. Hex.:		
½-in. & smaller	33	29
⅝-in. & ⅞-in..	24	15
1-in.-1½-in. ..	20	11
1⅝ in. & larger	17	11
C.P. Hex.:		
½-in. & smaller	33	29
⅝-in. & ⅞-in..	30	25
1-in. & 1½-in.	27	20
1⅝ in. & larger	20	15

SEMIFINISHED NUTS

American Standard

(Per cent off list for less than case or keg quantities)

	Hvy.	Reg.
½-in. & smaller ..	35	41
⅝-in. & ⅞-in. ...	29	36
1-in.-1½-in.	23	31
1⅝-in. & larger ..	17	21
Light		
½-in. & smaller	41	
½-in. to ⅞-in.	35	
1-in. to 1½-in.	33	

STEEL STOVE BOLTS

(F.o.b. plant; per cent off list in packages)

Plain finish .....56 & 10
Plated finishes .....41 & 10

HEXAGON CAP SCREWS

(1020 steel; packaged; per cent off list)

6 in. or shorter:
- ⅝-in. & smaller 47
- ¾-in. through 1 in. ... 40

Longer than 6 in.:
- ⅝-in. & smaller 33
- ¾-in. through 1 in. ... 13

SQUARE HEAD SET SCREWS

(Packaged; per cent off list)

1 in. diam. x 6 in. and shorter 44
1 in. and smaller diam. x over 6 in. 33

HEADLESS SET SCREWS

(Packaged; per cent off list)

No. 10 and smaller 41
¼-in. diam. & larger .. 24
N.F. thread, all diams... 18

RIVETS

F.o.b. midwestern plants

Structural ½-in., larger 7.25c
7/16-in. under .....43 off

WASHERS, WROUGHT

F.o.b. shipping point, to jobbers .....List to 50c off

ELECTRODES

(Threaded, with nipples, unboxed, f.o.b. plant)

GRAPHITE

—Inches— Diam.	Length	Cents per lb
17,18,20	60,72	16.00
8 to 16	48,60,72	16.50
7	48,60	17.75
6	48,60	19.00
4.5⅛	40	19.50
3	40	20.50
2½	24,30	21.00
2	24,30	23.00

CARBON

40	100,110	7.50
35	100,110	7.50
30	84,110	7.50
24	72 to 104	7.50
17 to 20	34,90	7.50
14	60,72	8.00
10.12	60	8.25

STAINLESS STEEL

(Cents per pound)

Type	Sheets	C.R. Strip	Bars Wire Structurals
301...	39.00	32.00	30.00
302...	39.00	34.50	30.00
303...	41.00	38.00	32.50
304...	41.00	36.50	31.50
309...	53.50	52.50	43.00
316...	54.50	56.50	47.50
321...	47.00	46.00	35.50
347...	51.50	50.00	40.00
410...	34.50	28.50	24.50
416...	35.00	35.00	25.00
420...	42.00	45.00	30.00
430...	37.00	29.00	25.00
501...	25.50	24.00	13.00
502...	26.50	25.00	14.00

Baltimore, Types 301 through 347 sheet, except 309 E2.

Baltimore, bars, wire and structural A10.

Brackenridge, Pa., sheets A4.

Bridgeville, Pa., bars, wire, sheets & strip U4.

Butler, Pa., sheets and strip except Types 303, 309, 416, 420, 501 & 502 A10.

Carnegie, Pa., strip except Type 416, S18.

Cleveland, strip A7.

Detroit, strip, except Types 303, 309, 321, 416, 420, 501 and 502 M1.

Dunkirk, N.Y., bars, wire A4.

Duquesne, Pa., bars C3.

Fort Wayne, Ind., bars and wire, except Types 501 and 502 J6.

Gary, Ind., sheets except Type 416 C3.

Harrison, N. J., strip C18.

Harrison, N. J., Types 302, 304, 316 wire and strip D6.

Massillon, all products R2.

McKeesport, Pa., bars, sheets except Type 416 C3.

McKeesport, Pa., bars & wire except Types 301, 309, 501 & 502; strip Types 410 & 430 only F2.

Middletown, O., sheets except Types 303, 416, 420, 501 and 502 A10.

Midland, sheets & strip C18.

Munhall, Pa., bars C3.

Pittsburgh, sheets C18.

Reading, Pa., bars & strip C4.

Sharon, Pa., strip, except Types 303, 309, 316, 416, 501 and 502 S3.

So. Chicago, Ill., bars & structurals C3.

Syracuse, N. Y., bars, wire & structurals C18.

Titusville, Pa., bars, U4.

Wallingford, Conn., strip, except 309, W2 quotes 0.25 cents higher.

Washington, Pa., bars, sheets & strip, except Type 309 sheets 54.00c and bars 43.50c, J3.

Washington, Pa., Types 301 through 347 sheets & strip as listed except 303 & 309; 316 sheets 59.50c, strip 61.50c W4.

Watervliet, N. Y., structurals & bars A4.

Waukegan, bars & wire A7.

West Leechburg, Pa., strip, A4.

Youngstown, strip C8.

COAL, CHEMICALS

Spot, cents per gallon, ovens
Pure benzol 30.00-32.00
Toluol, one deg...21.00-28.00
Industrial xylol ..21.00-29.50

Per ton bulk, ovens
Sulphate of ammonia..$32-45

Cents per pound, ovens
Phenol, 40 (carlots, non-returnable drums) ..17.25
Do., less than carlots..18.00
Do., tank cars 15.50

FLUORSPAR

Metallurgical grade,* f.o.b. shipping point, in Ill., Ky., net tons, corloads, effective CaF_2 content, 70% or more, $41; less than 60%, $38.

Imported, net ton, duty paid, metallurgical grade, $28-$29.

METAL POWDERS

(Per pound, f.o.b. shipping point in ton lots for minus 100 mesh, except as otherwise noted.)

Sponge iron Cents
- 98+% Fe, carlots.. 15.00
- Swedish, c.i.f. New York, in bags...7.40-8.50

Electrolytic Iron:
- Annealed, 99.5% Fe 39.50
- Unannealed, 99+% Fe 33.50
- Unannealed 99+% Fe(minus 325 mesh)48.50

Powder Flakes 44.50

Carbonyl Iron:
- 97.9-99.8%, size 5 to 10 microns..70.00-135.00

Aluminum:
- Carlots, freight allowed 27.00
- Atomized, 500 lb drums, freight allowed 30.00

Brass, 10-ton lots 30.00-35.25

Copper:
- *Electrolytic 36.75*
- *Reduced 33.75-37.00*

Lead 23.00

Manganese:
- Minus 100-mesh ... 52.00
- Minus 35 mesh ... 48.00
- Minus 200 mesh ... 56.00

Nickel unannealed .. 75.50

Nickel-Silver, 10-ton lots 43.25

Silicon 34.00

Solder (plus cost of metal) 8.50

Stainless Steel, 302 .. 75.00

Tin $1.30

Zinc, 10-ton lots..23.00-27.00

Tungsten: Dollars
- 99%, minus 80 to 200 mesh, freight allowed:
  - over 1000 lb 2.90
  - 1000 lb 2.95
  - less than 1000 lb. 3.00
- 98.8% minus 65 mesh, freight allowed:
  - 1000 lb and over.. 2.90
  - less than 1000 lb.. 3.00

Molybdenum:
- 99%, minus 80 to 200 mesh, over 500 lb 2.25
- 200 to 500 lb 2.60
- less than 200 lb .. 2.75
- 82-88%, freight allowed, 2000 lb and over .. 2.40
- less than 2000 lb.. 2.45

Chromium, electrolytic 99% Cr min. 3.50

METALLURGICAL COKE

Price per net ton

BEEHIVE OVENS

Connellsvll,fur. .$14.00-14.50
Connellsvll,fdry. .16.00-17.00
New River, foundry ..19.00
Wise county, foundry.15.95
Wise county, furnace..15.20

OVEN FOUNDRY COKE

Kearney, N. J., ovens.$22.75
Everett, Mass., ovens
- New England, del. †24.30

Chicago, ovens 21.00
- Chicago del. .....†22.45
- Detroit, del. 24.91

Terre Haute, ovens 22.50
Milwaukee, ovens 23.00
Indianapolis, ovens ...22.00
- Chicago, del. 25.37
- Cincinnati, del. 24.92
- Detroit, del. 25.90

Ironton, O., ovens 21.50
- *Cincinnati, del. 24.06*

Painesville, O., ovens..23.25
- Buffalo, del. 25.37
- Cleveland, del. 24.97

Erie, Pa., ovens 22.50
Birmingham, ovens 19.40
- *Birmingham, del. 20.45*

Philadelphia, ovens ..22.10
Neville Island,Pa.,ovens 22.00
Swedeland, Pa., ovens.22.00
St. Louis, ovens 22.99
- St. Louis, del. 24.12

Portsmouth, O., ovens ..21.50
- *Cincinnati, del. 24.06*

Detroit, ovens 23.00
- Detroit, del. *24.00
- Buffalo, del. 26.04
- Flint, del. 25.44
- Pontiac, del. 24.39
- Saginaw, del. 25.75

Includes representative switching charge of: *, $1.00; †, $1.45, one-track charge being $1.20, two tracks $1.40, and three or more tracks $1.50. ‡ Or within $4.15 freight zone from works.

WAREHOUSE STEEL PRODUCTS

(Prices, cents per pound, for delivery within switching limits, subject to extras)

	SHEETS			STRIP		BARS			Standard Structural Shapes	PLATES	
	H.R. 18 Ga., Heavier*	C.R.	Gal. 10 Ga.†	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.	H.R. Alloy 4140§		Carbon	Floor
New York(city)	5.82	6.84	7.84	6.14	...	5.97	6.64	8.60	5.95	6.18	7.64
New York(c'try)	5.52	6.64	7.54	5.84	...	5.67	6.34	8.70	5.65	5.88	7.34
Boston (city) ..	5.95	6.75	7.89	5.90	...	5.80	6.39	8.70	5.95	6.58	7.48
Boston (c'try) .	5.75	6.55	7.69	5.70	...	5.60	6.19	8.50	5.75	6.38	7.28
Phila. (city) ..	6.60-6.70	6.75	7.20	5.90	...	5.85	6.46	8.40	5.70	5.90	7.00
Phila. (c'try) ..	6.35-6.45	6.50	6.95	5.65	...	5.60	6.21	8.15	5.45	5.65	6.75
Balt. (city) ...	5.35	6.59	6.77	5.79	...	5.79	6.39	...	5.89	5.60	7.24
Balt. (c'try) ..	5.15	6.39	6.57	5.59	...	5.59	6.19	...	5.69	5.40	7.04
Norfolk, Va. ..	6.10	...	...	6.30	...	6.15	7.20	...	6.20	6.15	7.55
Richmond, Va..	5.55	...	6.80	5.83	...	5.73	6.30	...	5.83	5.65	7.33
Wash (w'hse) .	5.56	6.80	6.73	6.00	...	6.00	6.62	...	6.10	5.81	7.45
Buffalo (del.)..	5.35	6.15	7.10	5.61	...	5.35	5.95	10.10††[5]	5.55	5.85	7.15
Buffalo (w'hse).	5.15	5.95	6.90	5.41	...	5.15	5.75	9.90††[5]	5.35	5.65	6.95
Pitts. (w'hse)..	5.15	5.95*	6.70-6.95	5.20	6.15	5.10	5.75	9.55††	5.25	5.35	6.60
Detroit (w'hse)	5.33	6.08*	7.09	5.49	...	5.39	5.91	9.86††[5]	5.64	5.79	6.88
Cleveland (del.)	5.35	6.15	7.50	5.44	6.35	5.32	5.95	8.31	5.57	5.72	6.92
Cleve. (w'hse).	5.15	5.95	7.30	5.24	6.15	5.12	5.75	8.16	5.37	5.52	6.72
Cincin. (city) ..	5.57	6.14	6.54	5.50	...	5.50	6.11	...	5.79	5.94	7.10
Chicago (city) .	5.35	6.15	7.15	5.30	...	5.30	5.85	9.75††[5]	5.45	5.60	6.80
Chicago (w'hse)	5.15	5.95	6.95	5.10	...	5.10	5.65	9.55††[5]	5.25	5.40	6.60
Milwaukee(city)	5.49	6.29	7.29	5.44	...	5.44	6.09	9.89††[5]	5.59	5.74	6.94
Milwau. (c'try).	5.29	6.09	7.09	5.24	...	5.24	5.89	9.69††[5]	5.39	5.54	6.74
St. Louis (del.)	5.68	6.48	7.28	5.63	...	5.63	6.28	10.08††[5]	5.78	5.93	7.13
St. L. (w'hse).	5.48	6.28	7.08	5.43	...	5.43	6.08	9.88††[5]	5.58	5.73	6.93
Kans. City(city)	5.95	6.75	7.60	5.90	...	5.90	6.55	...	6.05	6.20	7.60
KansCity(w'hse)	5.75	6.55	7.40	5.70	...	5.70	6.35	...	5.85	6.00	7.40
Omaha, Nebr. .	6.13‡	...	8.33	6.13	...	6.18	6.98	...	6.18	6.38	7.83
Birm'ham (del.)	5.30	6.10	6.30[2]	5.25	...	5.25	6.88	...	5.40	5.70	7.83
Birm'hm(w'hse)	5.15	5.95	6.15[2]	5.10	...	5.10	...	...	5.25	5.55	...
Los Ang. (city)	6.10	7.65	7.90	6.15	8.90	6.10	7.75	...	6.10	6.20	8.40
L. A. (w'hse)..	5.90	7.45	7.70	5.95	8.70	5.90	7.55	...	5.90	6.00	8.20
San Francisco .	6.50[9]	7.60[3]	7.50[2]	7.45[9]	8.25[3]	6.30[9]	7.55	...	6.30[9]	6.40[9]	8.50[9]
Seattle-Tacoma.	6.60	8.15[3]	...	6.85	...	6.35	8.50	10.10	6.20	6.35[7]	8.40[7]

* Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ includes extra for 10 gage; § as rolled; †† as annealed. Base quantities, 2000 to 9999 lb except as noted: Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; [2]—500 to 1499 lb; [3]—450 to 1499 lb; [5]—1000 to 1999 lb; [7]—300 to 999 lb; [9]—400 to 9999 lb.

REFRACTORIES

(Prices per 1000 bricks, f.o.b. plant)

FIRE CLAY BRICK

Super Duty: St. Louis, Vandalia, Farber, Mexico, Mo., Olive Hill, Hayward, Ashland, Ky., Clearfield, Curwensville, Pa., Ottawa, Ill., $116.60. Hard-fired, St. Louis, Vandalia, Mo., Olive Hill, Ky., $156.20.

High-Heat Duty: Salina, Pa. $99.60; Woodbridge, N. J., St. Louis, Farber, Vandalia, Mexico, Mo., West Decatur, Orviston, Clearfield, Beach Creek, Curwensville, Lumber, Lockhaven, Pa., Olive Hill, Hitchins, Haldeman, Ashland, Ky., Troup, Athens, Tex., Stevens Pottery, Ga., Bessemer, Ala., Portsmouth, Oak Hill, O., Ottawa, Ill., $94.60.

Intermediate-Heat Duty: St. Louis, Farber, Vandalia, Mo., West Decatur, Orviston, Beach Creek, Curwensville, Lumber, Lockhaven, St. Marys, Clearfield, Pa., Olive Hill, Hitchins, Haldeman, Ashland, Hayward, Ky., Athens, Troup, Tex., Stevens Pottery, Ga., Portsmouth, O., Ottawa, Ill., $88; Bessemer, Ala., $79.20.

Low-Heat Duty: Oak Hill, or Portsmouth, O., Clearfield, Orviston, Pa., $79.20; Parral, O., $78.50; St. Marys, Pa., $76; Ottawa, Ill., $70.

LADLE BRICK

Dry Press: Chester, New Cumberland, W. Va., $60; Freeport, Merill Station, Clearfield, Pa., Irondale, Wellsville, O., $66.

Wire Cut: Chester, New Cumberland, W. Va., $58; Wellsville, O., $64.

MALLEABLE BUNG BRICK

St. Louis, Vandalia, Farber, Mo., Olive Hill, Ky., $105.60; Beach Creek, Pa., $94.60; Ottawa, Ill., $90.

SILICA BRICK

Mt. Union, Claysburg, or Sproul, Pa., Portsmouth, O., Ensley, Ala., $94.60; Hays, Pa., $100.10; Joliet, Rockdale, Ill., E. Chicago, Ind., $104.50; Lehi, Utah, Los Angeles, $111.10.

Eastern Silica Coke Oven Shapes (net ton): Claysburg, Mt. Union, Sproul, Pa., Birmingham, $92.40.

Illinois Silica Coke Oven Shapes (net ton): Joliet or Rockdale, Ill., E. Chicago, Ind., Hays, Pa., $93.50.

BASIC BRICK

Per net ton, Baltimore or Chester, Pa. Burned chrome brick, $73; chemical-bonded chrome brick, $77; magnesite brick, $99; chemical-bonded magnesite, $88.

MAGNESITE

Per net ton, Chewelah, Wash. Domestic dead-burned, ⅜" grains; bulk, $36.30; single paper bags, $41.80.

DOLOMITE

Per net ton. Domestic, burned bulk; Bonne Terre, Mo., $12.15; Martin, Millersville, Narlo, Clay Center, Woodville, Gibsonburg, Bettsville, O., Billmeyer, Plymouth Meeting, Blue Bell, Williams, Pa., Millville, W. Va., $13.

ORES

LAKE SUPERIOR IRON ORE

Gross ton, 51½% (natural), lower lake ports. After Jan. 25, 1950, increases or decreases, if any, in upper lake rail freight, dock handling charges and taxes thereon are for buyer's account.

Old range bessemer	$8.10
Old range nonbessemer	7.95
Mesabi bessemer	7.85
Mesabi nonbessemer	7.70
High phosphorus	7.70

EASTERN LOCAL ORE

Cents per unit, del. E. Pa.

Foundry and basic 56.62% concentrates contract	16.00

FOREIGN ORE

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68%:	
Spot	17.00
Long-term contract	15.00
North African hematites	15.75
Brazilian iron ore, 68-69%	18.00

TUNGSTEN ORE

Net ton unit, duty paid

Chinese	$36.00
Brazilian	36.00
Bolivian	36.00
Domestic scheelite, del.	36.00

MANGANESE ORE

Long term contracts, nominal; nearby, 48%, duty paid, 79.8c-81.8c per long ton unit, c.i.f. U. S. ports; prices on lower grades adjusted to manganese content and impurities.

CHROME ORE

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., or Tacoma, Wash.

Indian and African

48% 2.8:1	$32.50
48% 3:1	35.00-36.00
48% no ratio	26.00

South African Transvaal

44% no ratio	$17.00-18.00
45% no ratio	17.30-18.30
48% no ratio	26.00
50% no ratio	27.00-27.50

Brazilian

44% 2.5:1 lump	$32.00

Rhodesian

45% no ratio	$20.00-21.00
48% no ratio	26.00
48% 3:1 lump	35.00-36.00

Domestic—rail nearest seller

48% 3:1	$39.00

MOLYBDENUM

Sulphide concentrates per lb, molybdenum content, mines	$0.90

FERROALLOYS

MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si). Carlot per gross ton, $70, Palmerton, Pa.; $71, Pittsburgh and Chicago; (16% to 19% Mn) $1 per ton lower.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.) Carload, lump, bulk $172 per gross ton of alloy, c.l., packed, $184; gross ton lots, packed, $199; less gross ton lots, packed, $216; f.o.b. Alloy, W. Va., Niagara Falls, N. Y., Welland, Ont., or Ashtabula, O. Base price: $174, f.o.b. Birmingham and Johnstown, Pa., furnaces, $172, Sheridan, Pa.; $175, Etna, Pa. Shipment from Pacific Coast warehouses by one seller add $33 to above prices, f.o.b. Los Angeles, Oakland, Portland, Oreg. Shipment from Chicago warehouse, ton lots, $214; less gross ton lots, $231 f.o.b. Chicago. Add or subtract $2.15 for each 1% or fraction thereof, of contained manganese over 82% and under 78%, respectively.

Low-Carbon Ferromanganese, Regular Grade: (Mn 85-90%). Carload, lump, bulk, max. 0.07% C, 24.75c per lb of contained Mn, carload packed 25.5c, ton lot 26.6c, less ton 27.8c. Delivered. Deduct 0.5c for max. 0.15% C grade from above prices, 1c for max. 0.30% C, 1.5c for max. 0.50% C, and 4.5c for max. 75% C—max. 7% Si. **Special Grade:** (Mn 90% min., C 0.07% max., P 0.06% max.). Add 0.5c to above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.5% max). Carload, lump, bulk 18.15c per lb of contained Mn, carload packed 18.9c, ton lot 20.0c, less ton 21.2c. Delivered. Spot, add 0.25c.

Manganese Metal, 2" x D (Mn 96% min., Fe 2% max., Si 1% max., C 0.2% max.): Carload lump bulk, 29c per lb of metal; packed, 29.75c; ton lot 31.25c; less ton lot 33.25c. Delivered. Spot, add 2c.

Manganese, Electrolytic: 250 lb to 1999 lb, 32c; 2000 to 39,999 lb, 30c; 40,000 lb or more, 28c. Premium for hydrogen-removed metal 1.5c per pound, f.o.b. cars Knoxville, Tenn. Freight allowed to St. Louis or to any point east of Mississippi.

Silicomanganese:. (Mn 65-68%). Contract, lump, bulk, 1.50% C grade, 18-20% Si, 8.95c per lb of alloy, carload packed, 9.70c, ton lot 10.60c, less ton 11.60c. Freight allowed. For 2% C grade, Si 15-17%, deduct 0.2c from above prices. For 3% C grade, Si 12-14.5%, deduct 0.5c from above prices. Spot, add 0.25c.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l., lump, bulk, 20.5c per lb of contained Cr. c.l., packed 21.4c, ton lot 22.55c, less ton 23.95c. Delivered. Spot, add 0.25c.

"SM" High-Carbon Ferrochrome: (Cr 60-65%, Si 4-6%, Mn 4-6%, C 4-6%). Add 1.1c to high-carbon ferrochrome prices.

(*Please turn to page* 115)

UNIVERSITY OF MICHIGAN LIBRARIES

Metal Shortage Grows More Acute

Some manufacturers forced to pay exorbitant prices on gray market and some curtail operations. Tin prices soar to new record high. Red metal scrap quotations jump

New York—Shortages of nonferrous metals are increasingly acute. This situation is exerting terrific pressure on prices and is forcing some manufacturers of consumer goods to curtail operations.

Unable to obtain sufficient tonnages of metals from their regular suppliers, some users of copper, brass, aluminum, zinc, tin and nickel have been forced to pay exorbitant prices on the gray market to obtain enough of these materials to keep their plants open. Many manufacturers are buying scrap metals and sending them to refineries to be converted for their use. They must obtain high-grade scrap and pay shipping charges and also the charges for refining.

As a result, scrap metal prices are soaring. Competition for the limited supplies has forced dealers here to pay as high as 25.00c a pound for No. 1 heavy copper scrap, 65.00c for No. 1 pewter, 18.50c for 2S aluminum clippings and 15.00c for aluminum crankcase and old sheet.

In the primary market, Straits spot tin is exploring price levels never before reached, selling as high as $1.195 a pound. Silver advanced 7.25c an ounce last week to 80.00c.

National Production Authority in Washington is working on orders governing some of the major nonferrous metals, including copper and aluminum. Controls now being drafted likely will ban or curtail use of metal in some civilian products. At the same time, NPA will also attempt through priority regulations to spread military contracts equitably.

Copper — Producers and custom smelters are booking large tonnages daily to their regular customers, but are unable to satisfy all needs fully. As a result of the shortage, trading on the Commodity Exchange is being done at levels equivalent to around 35.00c a pound for electrolytic compared to the 24.50-cent level on the producers' market. Ingot makers, custom smelters and brass mills are being squeezed in obtaining scrap supplies by the competition of interests in the conversion market. Material is going to the latter at "fantastic prices."

Zinc—Activity on the Commodity Exchange is spectacular also in zinc with prices up to 28.50c recorded for prompt and nearby delivery. Producers are unable to cope with the pressure from their regular customers for coverage and are awaiting issuance of priorities and allocations regulations by the government to ease the situation. Prime western is holding in the primary market.

Some steel companies, including Republic, Wheeling and Youngstown, have been forced to curtail production of finished galvanized products as a result of the zinc shortage. Clarence B. Randall, president, Inland Steel Co., has protested in a letter to the National Security Resources Board, Washington, claiming that the zinc shortage is due to government hoarding in stockpile.

Lead—A tighter supply situation is developing in lead. Some producers who had accumulated large tonnages of the metal several months ago when demand was lagging have disposed of these surplus tonnages and are now limiting sales. Smelters are balancing their daily intake of ore and scrap easily and disposing of refined metal at the unchanged price of 16.00c, New York.

Tin—With prices of tin soaring to new all-time high, market interests are awaiting word on action taken at the international tin conference in Geneva on means of regulating the world market. Consumers have refrained from making large purchases at these price levels, but must re-enter the market soon to replenish their dwindling supplies. This may result in a further advance in the market.

Zinc Smelter Boosts Output

New York—New Jersey Zinc Co. at the end of September put into operation nine new vertical retorts at its Palmerton, Pa., plant, bringing the total to 43 retorts.

The new battery incorporates important new design features which are the outgrowth of over 20 years of operating experience. The retorts are larger and are equipped with splash condensers of the type announced by the company in March, 1949. The result is a substantially increased capacity per retort, in the order of 25 per cent, coupled with smoother operation and better condensation efficiency.

Big Power Project Authorized

Montreal, Que.—Aluminum Co. of Canada has been authorized by the Quebec government to go ahead with plans for hydro-electric development of the Peribonka river at an initial cost of $30 million. A government spokesman said the international situation has given impetus to the power projects since an increasing demand for aluminum has developed in world markets and particularly in the "immense United States market."

Aluminum Product Shipments Up

New York—Shipments of aluminum sheet and plate increased 25 per cent in August over those for July. This reflects the industry's response to stepped up military requirements. Sheet and plate shipments by members of the Aluminum Association, this city, totaled 113,531,771 pounds in August compared with 90,937,020 in July, reports Donald M. White, secretary of the Association.

Production of primary aluminum continued at the high level of previous months. A total of 126,011,903 pounds of the primary metal reported for August is only about 1 million pounds less than the six-year high of 127,035,422 pounds reached in July. The decline in August was due to a strike in one of the primary plants.

Commenting on a statement from Washington that William H. Harrison, administrator, National Production Authority, plans mandatory allocation of critical materials within two to three months, Mr. White pointed out that the producers of primary aluminum have been operating on voluntary allocations for nearly three months. "This was necessitated by unprecedented civilian demand of the past year, plus increasing military orders," he explained.

Titanium Prices Reduced

New York—Titanium Metals Corp. of America, this city, reduced titanium metal prices Oct. 25. Price cuts ranged from $3 to $5 a pound.

Base prices per pound in lots of 10,000 pounds and over in commercially pure and alloy grades, f.o.b. mill, are: Hot and cold-rolled sheets, $15, Brackenridge, Pa.; hot-rolled sheared mill plate, $12, Brackenridge; cold-rolled strip, $15, West Leechburg, Pa.; rolled or cold-drawn round bar in small diameters and round wire, $10, Dunkirk, N. Y.; forgings (rounds, discs and round cornered squares and rectangles), $6 Watervliet, N. Y.; bars (hot-rolled and forged rounds, flats and squares), $6, Watervliet.

Magnesium Plant to Reopen

Painesville, O.—Diamond Alkali Co. is readying its magnesium plant here for resumption of production as soon as possible. During World War II, the plant produced 18,000 tons of magnesium annually and employed as high as 700 workers.

Alcoa Plant Boosts Operations

Port Lavaca, Tex.—Alcoa's new Point Comfort aluminum reduction works here, which resumed operations Sept. 22 following a strike shutdown, will be back in full production by Jan. 1, reports George R. Stout, plant manager.

One line with 136 pots now is operating and two similar lines will go back in as soon as equipment can be reconditioned.

The plant can produce 114 million pounds annually, present production being shipped to Alcoa plants at Davenport, Iowa, and Alcoa, Tenn.

Electric power is generated by 120 Nordberg natural gas engines of a new radial design, each having 11 cylinders. Forty engines are housed in each of these engine rooms, one for each pot line.

Each engine-generator set is mounted vertically and operates independently of other units. Thirty-five engines can produce power needed by each pot line, five engines thus serving as spares and providing for necessary maintenance.

NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

Primary Metals

Copper: Electrolytic 24.50c, Conn. Valley; Lake 24.62½c, delivered.

Brass Ingot: 85-5-5-5 (No. 115) 27.00c; 88-10-2 (No. 215) 39.00c; 80-10-10 (No. 305) 31.00c; No. 1 yellow (No. 405) 23.75c.

Zinc: Prime western 17.50c; brass special 17.75c; intermediate 18.00c, East St. Louis; high grade 18.60c, delivered.

Lead: Common 15.80c; chemical 15.90c; corroding 15.90c, St. Louis.

Primary Aluminum: 99% plus, ingots 19.00c, pigs 18.00c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.l. orders.

Secondary Aluminum: Piston alloys 27.25-28.00c; No. 12 foundry alloy (No. 2 grade) 26.75-27.50c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 28.00-28.50c; grade 2 27.00-27.50c; grade 3, 26.50-27.00c; grade 4, 26.00-26.50c. Prices include freight at c.l. rate up to 75 cents per 100 lb.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over 24.50c, f.o.b. Freeport, Tex.

Tin: Grade A, prompt, Oct. 119.75c, Nov. 119.25c; Dec. 119.00c; Jan. 118.50c.

Antimony: American 99-99.8% and over but not meeting specifications below 32.00c; 99.8% and over (arsenic 0.05% max.; other impurities 0.1% max.) 32.50c; f.o.b. Laredo, Tex., for bulk shipments. Foreign, 99%; Chinese 34.00c; English, 32.75c; Belgian, 32.75c, duty paid, New York.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 48.00c; 25-lb pigs, 50.50c; "XX" nickel shot, 51.50c; "F" nickel shot or ingots, for addition to cast iron, 48.50c. Prices include import duty.

Mercury: Open market, spot, New York $92.50-$95 per 76-lb flask.

Beryllium-Copper: 3.75-4.25% Be, $30.00 per lb contained Be, f.o.b., Reading, Pa.

Cadmium: "Regular" straight or flat forms, $2.40 del.; special or patented shapes $2.65.

Cobalt: 97-99%, $1.80 per lb for 500 lb (keg); $1.82 per lb for 100 lb (case); $1.87 per lb under 100 lb.

Gold: U. S. Treasury, $35 per ounce.

Silver: Open market, New York 80.00c per oz.

Platinum: $90-$93 per ounce from refineries.

Palladium: $24 per troy ounce.

Iridium: $200 per troy ounce.

Titanium (sponge form): $5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Base prices, cents per pound, f.o.b. mill)

Sheet: Copper 39.93-40.93; yellow brass 36.86-37.53; commercial bronze, 95%, 39.91-40.86; 90%, 39.48-40.38; red brass, 85% 38.54-39.39; 80% 38.12-38.92; best quality, 38.40; nickel silver, 18%, 50.57-51.16; phosphor-bronze, grade A, 5%, 58.49-59.45.

Rods: Copper, hot-rolled 35.78-36.78; cold-drawn 37.03-38.03; yellow brass free cutting, 31.26-31.88; commercial bronze, 95% 39.60-40.55; 90% 39.17-40.07; red brass 85% 38.23-39.08; 80% 37.81-38.61.

Seamless Tubing: Copper 39.97-40.97; yellow brass 39.87-40.54; commercial bronze 90% 42.14-43.04; red brass 85% 41.45-42.30; 80% 41.83.

Wire: Yellow brass 37.15-37.82; commercial bronze, 95% 39.72-40.20; 90% 39.77-40.67; red brass, 85% 38.83-39.68; 80% 38.41-39.21; best quality brass 38.69.

Copper Wire: Bare, soft, f.o.b. eastern mills, c.l. 28.67, l.c.l. 29.17, 100,000 lb lots 28.545; weatherproof, f.o.b. eastern mills, c.l. 29.60, l.c.l. 30.10, 100,000 lb lots 29.35; magnet, del., 15,000 lb or more 34.50, l.c.l. 35.25.

ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders.

Sheets and Circles: 2S and 3S mill finish c.l.

Thickness Range, Inches	Widths or Diameters, In., Incl.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	30.1	...	...
0.135-0.096	12-48	30.6	...	...
0.095-0.077	12-48	31.2	29.1	33.2
0.076-0.061	12-48	31.8	29.3	33.4
0.060-0.048	12-48	32.1	29.5	33.7
0.047-0.038	12-48	32.5	29.8	34.0
0.037-0.030	12-48	32.9	30.2	34.6
0.029-0.024	12-48	33.4	30.5	35.0
0.023-0.019	12-36	34.0	31.1	35.7
0.018-0.017	12-36	34.7	31.7	36.6
0.016-0.015	12-36	35.5	32.4	37.6
0.014	12-24	36.5	33.3	38.9
0.013-0.012	12-24	37.4	34.0	39.7
0.011	12-24	38.4	35.0	41.2
0.010-0.0095	12-24	39.4	36.1	42.7
0.009-0.0085	12-24	40.6	37.2	44.4
0.008-0.0075	12-24	41.9	38.4	46.1
0.007	12-18	43.3	39.7	48.2
0.006	12-18	44.8	41.0	52.8

* Lengths 72 to 180 inches. † Maximum diameter, 26 inches.

Screw Machine Stock: 5000 lb and over.

Diam. (in.) or distance across flats	—Round— R317-T4, 17S-T4	R317-T4	——Hexagonal—— 17S-T4
0.125	52.0	....	....
0.156-0.188	44.0	....	....
0.219-0.313	41.5	....	....
0.375	40.0	46.0	48.0
0.406	40.0	....	....
0.438	40.0	46.0	48.0
0.469	40.0	....	....
0.500	40.0	46.0	48.0
0.531	40.0	....	....
0.563	40.0	....	45.0
0.594	40.0	....	....
0.625	40.0	43.5	45.0
0.688	40.0	....	45.0
0.750-1.000	39.0	41.0	42.5
1.063	39.0	....	41.0
1.125-1.500	37.5	39.5	41.0
1.563	37.0	....	....
1.625	36.5	....	39.5
1.688-2.000	36.5	....	....

LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more $21.00 per cwt; add 50c cwt, 10 sq ft to 140 sq ft. Pipe: Full coils $21.00 per cwt. Traps and bends: List prices plus 60%.

ZINC

Sheets, 23.50-23.75c, f.o.b. mill 36,000 lb and over. Ribbon zinc in coils, 22.50-23.00c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 21.50-22.00c; over 12-in., 22.50-23.00c.

"A" NICKEL

(Base prices f.o.b. mill)

Sheets, cold-rolled, 69.00c. Strip, cold-rolled, 77.00c. Rods and shapes, 65.00c. Plates, 67.00c. Seamless tubes, 98.00c.

MONEL

(Base prices, f.o.b. mill)

Sheets, cold-rolled 53.00c. Strip cold-rolled 56.00c. Rods and shapes, 51.00c. Plates, 52.00c. Seamless tubes, 86.00c. Shot and blocks, 46.00c.

MAGNESIUM

Extruded Rounds, 12 in. long, 1.31 in. in diameter, less than 25 lb. 55.00-62.00c; 25 to 99 lb. 45.00-52.00c; 100 lb to 5000 lb, 41.00c.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill) Sheets, $15; sheared mill plate, $12; strip, $15; wire, $10; forgings, $6; hot-rolled and forged bars, $6.

DAILY PRICE RECORD

1950	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
Oct. 26	24.50	15.80	17.50	119.25	19.00	32.00	48.00	80.00
Oct. 25	24.50	15.80	17.50	118.75	19.00	32.00	48.00	80.00
Oct. 24	24.50	15.80	17.50	117.50	19.00	32.00	48.00	80.00
Oct. 23	24.50	15.80	17.50	116.00	19.00	32.00	48.00	77.75
Oct. 20-21	24.50	15.80	17.50	114.00	19.00	32.00	48.00	72.75
Oct. 19	24.50	15.80	17.50	113.00	19.00	32.00	48.00	72.75
Oct. 18	24.50	15.80	17.50	113.25	19.00	32.00	48.00	72.75
Oct. 17	24.50	15.80	17.50	112.50	19.00	32.00	48.00	72.75
Oct. 16	24.50	15.80	17.50	111.50	19.00	32.00	48.00	72.75
Oct. 13-14	24.50	15.80	17.50	111.375	19.00	32.00	48.00	72.75
Oct. 10-11	24.50	15.80	17.50	111.50	19.00	32.00	48.00	72.75
Oct. 9	24.50	15.80	17.50	109.25	19.00	32.00	48.00	72.75
Oct. 6-7	24.50	15.80	17.50	107.50	19.00	32.00	48.00	72.75

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99%, del.; Antimony, bulk, f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery unpacked; Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

Plating Materials

Chromic Acid: 99.9% flake, f.o.b. Philadelphia, carloads, 27.00c; 5 tons and over 27.50c; 1 to 5 tons, 28.00c; less than 1 ton 28.50c.

Copper Anodes: Base 2000 to 5000 lb; f.o.b. shipping point, freight allowed; Flat untrimmed 37.59c; oval 37.09c; cast 35.62c.

Copper Cyanide: 70-71% Cu, 100-lb drums, 1000 lb 55.6c, under 1000 lb 57.6c, f.o.b. Niagara Falls, N. Y.

Sodium Cyanide: 96-98%, ½-oz ball, in 200 lb drums, 1 to 900 lb, 19.00c; 1000 to 19,000 lb, 18.00c, f.o.b. Niagara Falls, N. Y. Packaged in 100 lb drums add ½-cent.

Copper Carbonate: 54-56% metallic Cu; 50 lb bags, up to 200 lb, 19.25c; over 200 lb 28.25c, f.o.b. Cleveland.

Nickel Anodes: Rolled oval, carbonized, carloads, 65.00c; 10,000 to 30,000 lb, 63.00c; 3000 to 10,000 lb, 67.00c, 500 to 3000 lb, 68.00c; 100 to 500 lb, 70.00c; under 100 lb, 73.00c; f.o.b. Cleveland.

Nickel Chloride: 100-lb kegs, 33.50c; 400-lb bbl. 31.50c up to 10,000 lb, 31.00c; over 10,000 lb, f.o.b. Cleveland, freight allowed on barrels, or 4 or more kegs.

Tin Anodes: Bar, 1000 lb and over, nom.; 500 to 999 lb, nom.; 200 to 499 lb, nom.; less than 200 lb, nom.; ball, 1000 lb and over, nom.; 500 to 999 lb, nom.; 200 to 499 lb, nom.; less than 200 lb, nom.; f.o.b. Sewaren, N. J.

Sodium Stannate: 25 lb cans only, less than 100 lb, to consumers nom.; 100 or 300 lb drums only, 100 to 500 lb, nom.; 600 to 1900 lb, nom.; 2000 to 9900 lb, nom.; f.o.b. Sewaren, N. J. Freight not exceeding St. Louis rate allowed.

Zinc Cyanide: 100 lb drums, less than 10 drums 47.7c, 10 or more drums 45.7c, f.o.b. Niagara Falls, N. Y.

Stannous Sulphate: 100 lb kegs or 400 lb bbl, less than 2000 lb nom.; more than 2000 lb, nom., f.o.b. Carteret, N. J.

Stannous Chloride (Anhydrous): In 400 lb bbl, nom.; 100 lb kegs nom., f.o.b. Carteret, N. J.

Scrap Metals

BRASS MILL ALLOWANCES

Prices in cents per pound for less than 15,000 lb, f.o.b. shipping point.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	23.00	23.00	22.25
Yellow Brass	20.125	19.875	18.875
Commercial Bronze			
95%	21.875	21.625	21.125
90%	21.75	21.50	21.00
Red brass			
85%	21.50	21.25	20.75
80%	21.375	21.125	20.625
Muntz metal	19.00	18.75	18.25
Nickel, silver, 10%	22.25	22.00	11.125
Phos. bronze, A	24.00	23.75	22.75

BRASS INGOT MAKERS' BUYING PRICES

(Cents per pound, delivered eastern refineries, carload lots)

No. 1 copper 22.25; No. 2 copper 21.25; light copper 20.25; composition red brass 21.50; radiators 17.00; heavy yellow brass 17.00.

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 22.00; No. 2 copper 21.00; light copper 20.00; refinfiery brass (60% copper) per dry copper content 20.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Copper and brass: Heavy copper and wire, No. 1 24.50-25.00; No. 2 22.50-23.00; light copper 21.00-21.50; No. 1 composition red brass 18.75-19.00; No. 1 composition turnings 18.25-18.50; mixed brass turnings 13.00-13.50; new brass clippings 18.50-19.00; No. 1 brass rod turnings 17.00-17.50; light brass 11.75-12.00; heavy yellow brass 13.50-14.00; new brass rod ends 17.50-18.00; auto radiators 15.25-15.50; cocks and faucets, 16.75-17.00; brass pipe 17.75-18.00.

Lead: Heavy 13.75-14.00; battery plates 8.25-8.50; linotype and stereotype 14.50-14.75; electrotype 12.75-13.00; mixed babbitt 12.25-12.50.

Zinc: Old zinc 11.00-11.25; new die cast scrap 10.75-11.00; old die cast scrap 8.00-8.25.

Tin: No. 1 pewter 63.00-65.00; block tin pipe 85.00-90.00; No. 1 babbitt 58.00-60.00.

Aluminum: Clippings 2S 18.50; old sheets 14.00-15.00; crankcase 15.00; borings and turnings 12.00-12.50.

UNIVERSITY OF MICHIGAN LIBRARIES

IRON AND STEEL SCRAP

Consumer prices, except as otherwise noted, including brokers' commissions, as reported to STEEL, Oct. 26, 1950; gross tons
Changes shown in italics.

STEELMAKING SCRAP COMPOSITE

Oct. 26	$41.67
Oct. 19	41.50
Sept. 1950	40.93
Oct. 1949	26.71
Oct. 1945	19.17

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

PITTSBURGH

No. 1 Heavy Melt.	$44.00
No. 2 Heavy Melt.	41.00
No. 1 Busheling	44.00
No. 1 Bundles	44.00-46.00
No. 2 Bundles	39.00
Heavy Turnings	43.00-44.00
Machine Shop Turnings	35.00-36.00†
Mixed Borings, Turnings	35.00-36.00†
Short Shovel Turnings.	38.00
Cast Iron Borings	36.00-37.00
Low Phos. Steel	51.50-52.50

Cast Iron Grades

No. 1 Cupola Cast	49.00-50.00
No. 1 Machinery Cast	55.00-56.00
Charging Box Cast	45.00-46.00
Heavy Breakable Cast.	44.00-45.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	44.00
Rails, Random Lengths	59.00-60.00
Rails, 2 ft. and under	66.50-67.50
Rails, 18 in. and under	67.50-68.50
Railroad Specialties	59.00-59.50

† Crushers' buying prices.

CLEVELAND

(Delivered Consuming Plant)

No. 1 Heavy Melt. Steel	$43.00-43.50
No. 2 Heavy Melt. Steel	39.00-39.50
No. 1 Busheling	42.50-43.00
No. 1 Bundles	42.50-43.00
No. 2 Bundles	31.00-31.50
Machine Shop Turnings	35.00-35.50
Mixed Borings, Turnings	36.50-37.00
Short Shovel Turnings.	36.50-37.00
Cast Iron Borings	36.50-37.00
Low Phos.	46.00-46.50

Cast Iron Grades

No. 1 Cupola	62.00-63.00
Charging Box Cast	49.00-50.00
Stove Plate	46.00-47.00
Heavy Breakable Cast.	49.00-50.00
Unstripped Motor Blocks	39.00-40.00
Brake Shoes	46.00-47.00
Clean Auto Cast	62.00-63.00
No. 1 Wheels	52.00-53.00
Burnt Cast	43.00-44.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	44.00
R.R. Malleable	64.00-65.00
Rails, 3 ft and under.	64.00-65.00
Rails, 18 in. and under	65.00-66.00
Rails, Random Lengths	60.00-61.00
Cast Steel	51.00-52.00
Railroad Specialties	53.00-54.00
Uncut Tires	58.00-59.00
Angles, Splice Bars	61.00-62.00

VALLEY

No. 1 Heavy Melt. Steel	$43.50-44.00
No. 2 Heavy Melt. Steel	39.50-40.00
No. 1 Bundles	43.50-44.00
Facty. Prod. Bundles.	43.50-44.00
No. 2 Bundles	34.00-34.50
Machine Shop Turnings	35.00-35.50
Short Shovel Turnings.	37.00-37.50
Cast Iron Borings	37.00-37.50
Low Phos.	46.00-46.50

Railroad Scrap

No. 1 R.R. Heavy Melt.	43.50-44.00

PHILADELPHIA

No. 1 Heavy Melt. Steel	*$39.00-43.00*
No. 2 Heavy Melt. Steel	*36.00-37.00*
No. 1 Busheling	38.00
No. 1 Bundles	*39.00-43.00*
No. 2 Bundles	32.00
Short Shovel Turnings.	33.00
Machine Shop Turnings	*29.00-30.00*
Mixed Borings, Turnings	26.00-27.00
Low Phos. Punchings and Plate, elec. fur. grade	*48.00-49.00*
Low Phos. Plate, 5 ft & Under	*48.00-49.00*
Elec. Furnace Bundles	*45.00*
Heavy Turnings	39.00
No. 1 Chemical Borings	40.00
Knuckles and couplers	*51.00-52.00*
Steel car wheels	*51.00-52.00*

Cast Iron Grades

No. 1 Cupola Cast	*50.00-51.00*
No. 1 Machinery Cast.	*53.00-54.00*
No. 1 Yard Cast	*49.00-50.00*
Charging Box Cast	*50.00-51.00*
Heavy Breakable Cast	*49.00*
No. 1 Wheels	*60.00*
Malleable	64.00

CINCINNATI

No. 1 Heavy Melt. Steel	*$43.00*
No. 2 Heavy Melt. Steel	*39.00*
No. 1 Busheling	*43.00*
No. 1 Bundles	*43.00*
No. 1 Black Bundles	*39.00*
No. 3 Bundles	28.00
Machine Shop Turnings	27.00
Short Shovel Turnings.	30.00
Mixed Borings, Turnings	29.00
Cast Iron Borings	30.00

Cast Iron Grades

No. 1 Cupola Cast	62.00
Charging Box Cast	*53.50*
Stove Plate	*50.00*
Heavy Breakable Cast	*51.00*
Unstripped Motor Blocks	*40.00*
Brake Shoes	34.00
Clean Auto Cast	*62.00*
Drop Broken Cast	65.00
Low Phos., 18 in. and under	55.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	*44.00*
R.R. Malleable	60.00
Rails, Rerolling	*62.00*
Rails, Random Lengths	*62.00*
Rails, 18 in. and under	70.00

DETROIT

(Brokers' buying prices, f.o.b. shipping point)

No. 2 Heavy Melt. Steel	**$30.00-31.00**
No. 1 Bundles	**37.00-37.50**
No. 2 Bundles	**29.00-30.00**
No. 1 Busheling	**37.00-37.50**
Machine Shop Turnings	*29.00-29.50*
Forge Flashings	**37.00-37.50**
Short Shovel Turnings	*31.00-31.50*
Cast Iron Borings	*31.00-31.50*
Punchings & Plate Scrap	**39.00-40.00**

Cast Iron Grades

No. 1 Cupola Cast	45.00-50.00
Heavy Breakable Cast	35.00-40.00
Clean Auto Cast	47.00-52.00

BUFFALO

No. 1 Heavy Melt. Steel	$41.00-42.00
No. 2 Heavy Melt. Steel	38.00-38.50
No. 1 Busheling	38.00-38.50
No. 1 Bundles	39.50-40.00
No. 2 Bundles	36.00-36.50
Machine Shop Turnings	*34.00-35.00*
Mixed Borings, Turnings	*35.00-36.00*
Cast Iron Borings	*35.00-36.00*
Short Shovelings	*35.00-36.00*
Low Phos.	*44.00-45.00*

Cast Iron Grades

No. 1 Cupola	44.00-45.00
No. 1 Machinery	*47.00-48.00*
Malleable	*55.00-56.00*

Railroad Scrap

Rails, 2 ft. and under	*60.00-61.00*
Rails, random size	*53.00-54.00*
Railroad Specialties	*53.00-53.50*

NEW YORK

(Brokers' buying prices f.o.b. shipping point)

No. 1 Heavy Melt. Steel	*$34.50**
No. 2 Heavy Melt. Steel	29.00-30.00
No. 1 Busheling	32.00-33.00
No. 1 Bundles	*34.50**
No. 2 Bundles	28.00-29.00
Mixed Borings, Turnings	24.50-25.00
Machine Shop Turnings	24.50-25.00
Short Shovel Turnings	26.00-27.00
Punchings & Plate Scrap	37.00-38.00
Low Phos. Plate, 5 ft & under	37.00-38.00
Elec. Furnace Bundles.	36.00-37.00

Cast Iron Grades

No. 1 Cupola Cast	39.00-40.00
No. 1 Machinery	41.00-42.00
Charging Box Cast	*39.00-40.00*
Heavy Breakable	*39.00-40.00*
Unstripped Motor Blocks	33.00-34.00

* Nominal

BOSTON

(F.o.b. shipping point)

No. 1 Heavy Melt. Steel	$32.00
No. 2 Heavy Melt. Steel	28.50-29.00
No. 1 Bundles	32.00
No. 1 Busheling	31.50-32.00
Machine Shop Turnings	23.50-24.50
Short Shovel Turnings.	25.00-26.00
Mixed Borings, Turnings	25.00-25.50
Bar Crops and Plate	40.00-42.00
Punchings & Plate Scrap	40.00-42.00
Chemical Borings	29.00-30.00

Cast Iron Grades

No. 1 Cupola Cast	*41.00-42.00*
Mixed Cast	*39.00-40.00*
Heavy Breakable Cast	*38.50-39.50*
Stove Plate	*39.00-41.00*

CHICAGO

No. 1 Heavy Melt. Steel	**$40.00**
No. 2 Heavy Melt. Steel	**38.00**
No. 1 Bundles	**40.00**
No. 2 Bundles	35.00
Machine Shop Turnings.	**31.00-32.00**
Mixed Borings, Turnings	**33.00-34.00**
Short Shovel Turnings.	**33.00-34.00**
Cast Iron Borings	**33.00-34.00**
Low Phos.	*48.00-50.00*
Elec. Furnace Bundles.	**40.00-41.00**
Heavy Turnings	**37.00-38.00**
Cut Structurals	**44.00-45.00**

Cast Iron Grades

No. 1 Cupola Cast	53.00-54.00
Clean Auto Cast	54.00-56.00
No. 1 Wheels	49.00-50.00
Stove Plate	43.50-44.50

Railroad Scrap

No. 1 R.R. Heavy Melt.	45.00-46.00
Malleable	59.00-60.00
Rails, Rerolling	64.00-65.00
Rails, Random Lengths.	56.00-57.00
Rails, 2 ft. and under	*63.00-64.00*
Rails, 18 in. and under	*64.00-65.00*
Railroad Specialties	54.00-55.00
Angles, Splice Bars	53.00-54.00

BIRMINGHAM

No. 1 Heavy Melt. Steel	$38.00-40.00
No. 2 Heavy Melt. Steel	34.00-35.00
No. 1 Busheling	36.00
No. 2 Bundles	35.50
Machine Shop Turnings	30.00
Mixed Borings, Turnings	28.00
Short Shovel Turnings	34.00
Cast Iron Borings	28.00
Bar Crops and Plate	44.00-45.00
Cut Structurals	44.00

Cast Iron Grades

No. 1 Cupola Cast	54.00
Stove Plate	47.00-48.00
No. 1 Wheels	nominal

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.00-41.00
R.R. Malleable	nominal
Rails, Rerolling	58.00-59.00
Rails, 2 ft and under	59.00-60.00
Angles and Splice Bars	50.00

ST. LOUIS

No. 1 Heavy Melt. Steel	$40.00-41.00
No. 2 Heavy Melt. Steel	36.00-37.00
No. 1 Bundles	39.00-40.00
No. 2 Bundles	35.00-36.00
Machine Shop Turnings	*27.50-28.50*
Short Shovel Turnings.	30.00-31.00

Cast Iron Grades

No. 1 Cupola Cast	50.00-52.00
Charging Box Cast	40.00-42.00
Heavy Breakable Cast.	42.00-44.00
Brake Shoes	47.00-49.00
Clean Auto Cast	50.00-52.00
Burnt Cast	41.00-43.00

Railroad Scrap

R.R. Malleable	58.00-60.00
Rails, Rerolling	61.00-63.00
Rails, Random Lengths	*55.00-57.00*
Rails, 2 ft and under.	58.00-60.00
Uncut Tires	*50.00-51.00*
Angles, Splice Bars	*58.00-60.00*
Railroad Specialties	*54.00-55.00*

SAN FRANCISCO

No. 1 Heavy Melt. Steel	$26.50
No. 2 Heavy Melt. Steel	24.50
No. 1 Bundles	26.50
No. 2 Bundles	22.50
No. 3 Bundles	19.50
Machine Shop Turnings	13.00
Low phos, electric	40.00

Cast Iron Grades

No. 1 Cupola Cast	45.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	26.50
Rails, Random Lengths	26.50

SEATTLE

No. 1 Heavy Melt. Steel	$24.00*
No. 2 Heavy Melt. Steel	24.00*
No. 1 Busheling	21.50
Nos. 1 & 2 Bundles	22.00
No. 3 Bundles	18.00
Machine Shop Turnings	15.00
Mixed Borings, Turnings	15.00
Punchings & Plate Scrap	30.00-32.50
Cut Structurals	30.00-32.50

Cast Iron Grades

No. 1 Cupola Cast	35.00-41.00
Heavy Breakagle Cast	30.00-35.00
Stove Plate	25.00-27.50
Unstripped Motor Blocks	30.00
Malleable	30.00
Brake Shoes	30.00
Clean Auto Cast	35.00
No. 1 Wheels	32.50

Railroad Scrap

No. 1 R.R. Heavy Melt.	25.00
Railroad Malleable	30.00
Rails, Random Lengths	26.00
Angles and Splice Bars	25.00

* Nominal

LOS ANGELES

(F.o.b. car, Los Angeles)

No. 1 Heavy Melt. Steel	$26.50
No. 2 Heavy Melt. Steel	24.50
No. 1 Bundles	26.50
No. 2 Bundles	22.50
No. 3 Bundles	17.50
Machine Shop Turnings	13.00
Punchings & Plate Scrap	40.00

Cast Iron Grades

No. 1 Cupola Cast	49.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	nominal
Rails, Rerolling	39.50

HAMILTON, ONT.

(Delivered prices)

Heavy Melt.	$30.00
No. 1 Bundles	30.00
Mechanical Bundles	28.00
Mixed Steel Scrap	28.00
Mixed Borings, Turnings	23.00
Rails, Remelting	30.00
Rails, Rerolling	33.00
Busheling	24.50
Bushelings new factory, prep'd	28.00
Bushelings new factory, unprep'd	23.00
Short Steel Turnings	23.00

Cast Iron Grades*

No. 1 Machinery Cast.	45.00

* F.o.b. shipping point.

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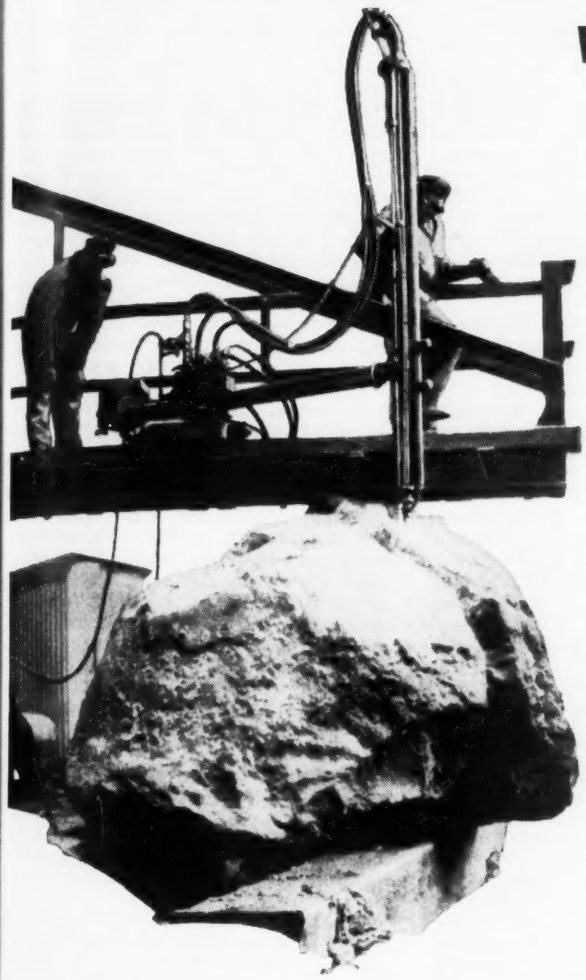
Trade-Mark



Here's the OXWELD *C-60 Cutting Blowpipe in action . . . slicing up a steel button 6 ft. thick with ease!*

Oxygen cutting rapidly converts steel sections of every size, shape, and type into good, usable scrap. Any thickness is easily reduced to charging-box size with OXWELD equipment. And no job is too tough. Whatever your scrap-cutting problem, there's an OXWELD blowpipe to solve it efficiently and economically.

For the extra-heavy jobs, the OXWELD C-60 Cutting Blowpipe with powder-cutting attachment is the answer. Especially engineered for cutting spills and ladle skulls, this combination easily makes continuous cuts through 6 ft. of dirty, slag-incrusted steel.

Other highly adaptable OXWELD blowpipes speed up medium scrapping operations. Mounted on portable, lightweight machines, they work on a production basis, cutting ingots, castings, and risers into sizes convenient for charging into the furnace.

On the lighter jobs, sturdy OXWELD hand-cutting blowpipes ready steel scrap up to 12 in. thick for the charging box. With 57 different nozzles to choose from, you get maximum efficiency at lowest overall cost.

LINDE has accumulated a vast amount of practical experience in helping to solve many unusual scrapping problems. If you have a scrap-cutting problem, ask our nearest office for help. We have the know-how, the "show-how," and everything you need to do the job profitably.

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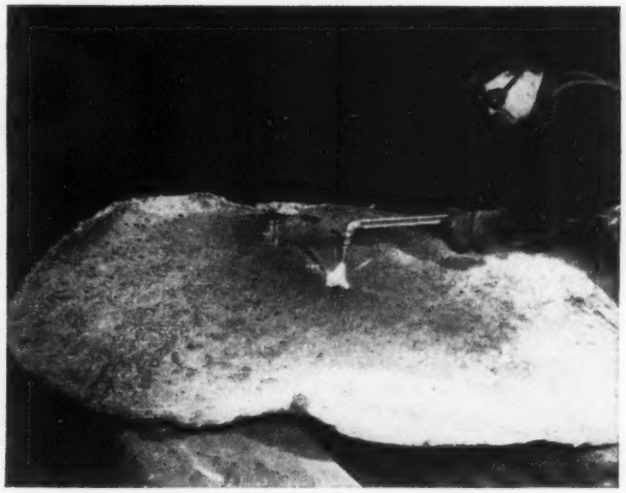
In Canada: Dominion Oxygen Company, Limited, Toronto

A lightweight OXWELD *portable machine speeds this scrap-cutting operation. Setup is semi-automatic and portable . . . can be easily moved from one job to another.*



Spills, salamanders, and other mill scrap can be cut quickly and efficiently with an OXWELD *hand-cutting blowpipe . . . and with minimum gas consumption.*

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Strip Extras Revised

Weirton, W. Va.—Weirton Steel Co. advanced hot-rolled strip extras, effective Oct. 12. Pickling extras are up $1 a ton for widths over 6 to 12 in. Specified length brackets of 24 to 42 in. and 42 to 60 in. are combined, with previous cutting to length extras applicable to specified lengths of 24 to 42 in. now applying up to 60 in., inclusive. Cutting to length extras are up $1 to $3 per ton for 0.0449-in. and thicker and in specified length brackets of over 60 to 240 in.

Normalizing extra is up $2; box annealed and/or deoxidized, $4. Spheroidized annealed extra of 65 cents per 100 lb is incorporated in the company's new card, and above heat treatment extras now apply to 0.60 per cent carbon maximum.

Special killed steel extra of 45 cents is deleted from the cold-rolled strip extra card, and wording of special requirement extra of 90 cents is augmented to include "where aluminum killed steel is specified or required."

Weirton's new hot-rolled sheet card no longer lists length and cutting extras for 17 and 18 gage. Pickling extras are up $1 per ton and are restricted to thicknesses up to 16 gage, inclusive. Normalizing extras are up $2. Box annealing extra of $4 is applicable only up to 0.60 per cent carbon maximum. Extra of 15 cents per 100 pounds has been inserted in hot and cold-rolled sheet extra cards covering "outside inspection" when specified.

Packaging extras applicable to hot and cold-rolled sheets are up $1 to $3 per ton. Special marking extra is up $1.

Width brackets under gage and width size extras for cold-rolled sheets are revised as follows: Over 23 15/16 to 35 15/16 in., over 35 15/16 to 36½ in., and over 36½ to 46 in., applicable extras have been altered to reflect new width brackets. Length extras are up $1 to $2 per ton in lengths over 48 to 180 in., while extras applicable to gage brackets 20 to 24 gage and 25 gage and lighter have been combined under one heading of 0 gage and lighter.

Weirton Steel also recently advanced hot and cold-rolled high-strength low-alloy sheets and strip $5 a ton.

Sheets, Strip . . .

Sheet and Strip Prices, Page 95 & 96

Boston—Order restricting columbium-bearing stainless to DO rated orders is considered the entering wedge in limiting use of those grades for civilian application unless more nickel is available. Currently products fabricated from 347 type are covered, limitation growing from the squeeze in ferrocolumbium and ferrotantalum rather than nickel primarily. Shortage of ore on this side developed some months ago when British started smelting in greater volume to ease dollar shortage.

Volume being done in flat-rolled products is largely on rated orders and pressure has eased for civilian requirements temporarily because of filled capacity.

New York—Sheet sellers continue out of the market except for priority orders which are being accepted for rolling after turn of the year. The mills are booked up for the remainder of this year and have not opened books for first quarter on commercial tonnage. Considerable non-rated work on books and scheduled originally for shipment before end of the year will be handled in first quarter.

DO priority orders are not as numerous as they were a couple of weeks ago when there was a sharp flurry of ordering by consumers who were anxious to get tonnage on books for shipment before end of this year; also when there was a movement to certify with such ratings the military orders that had been placed previously.

Cleveland—Sheetmakers' hopes of getting current with regular commercial orders by yearend have gone by the board. The carryover into first quarter will be heavy, not only on regular customer account but on DO and other rated orders as well. To what extent rated tonnage will cut into civilian supplies still is unknown. Military and other emergency needs will increase steadily through first and second quarter next year, however. And with some sheetmaking facilities likely to be diverted to rolling plates the shortage of sheets, already acute, promises to intensify steadily.

Cincinnati—Sheet mills are setting up schedules for remainder of the year. Carryover into 1951 will be heavy. Even without an increase in DO tonnage for first quarter delivery, supplies would be tight.

Chicago—First quarter sheet and strip quotas will be cut, in some cases as much as 10-15 per cent. Two factors are responsible: Change in product mix with heavier emphasis on plates; influx of DO orders which will create arrearage problems. Some steel men believe preferential programs will be piled on until all distribution must be controlled, in which case the present set-up will break down. Others think preferential programs will not need the tonnages now being requested for any sustained period, in which case the present set-up will also break down.

Steel Bars . . .

Bar Prices, Page 95

Boston — Some producers have opened books for first quarter on cold-drawn carbon and alloy bars, also hot-rolled alloys, but volume for general distribution is narrowing. Carryovers will be substantial and with rated orders taking additional first quarter space, openings for general allocation are limited. Forge shops are entering heavier rated tonnage while Watertown arsenal has placed close to 5000 tons of bars for remelting with Bethlehem Steel Co.

New York—Bar sellers report a slackening in DO priority orders, the initial wave of a couple of weeks or so ago having subsided. Hot bar sellers haven't yet opened books on general commercial requirements for first quarter.

Pittsburgh—Wyckoff Steel Co. revised extras upward on turned and polished, also turned, ground and polished shafting $10 per ton and ground and polished bars were increased $5, effective Oct. 20, in line with similar action initiated by Jones & Laughlin Steel Corp. Columbia Steel & Shafting Co. adopted like extra schedule Oct. 23.

Some coldfinishers are hard pressed for hot-rolled bars to sustain production pace in excess of 70 per cent of capacity.

Cleveland—Bar mill schedules are filled through remainder of the year and with DO and other emergency tonnage rising there is little chance producers will be able to get current on commercial tonnage by yearend. All the signs point to heavy carryover into first quarter, which in part explains sellers' delay in opening books for the period. For all practical purposes, the only business being accepted right now is on national emergency account, and since these orders must carry 45-days lead time it is obvious such bookings from here on will not be rolled until after turn of the year.

Chicago—Some bar makers are receiving more DO rated orders than anticipated, in cases, more than they are obligated to supply. Fabricators are trying to place rated orders with mills which do not regularly supply them in expectation their civilian quotas will not be reduced and their overall intake of steel increased. Producers do not yet know how to cope with this situation. Ultimately all mills will have so much rated tonnage booked civilian quotas must suffer reduction. One district mill is understood booking DO orders without reducing quotas this quarter, leaving the day of reckoning until next quarter. Some cold-finishers have announced first quarter monthly quotas for carbon and alloy material.

Seattle—Rolling mills are operating at full capacity, making inroads on fairly large backlogs. Merchant bars are moving in heavier volume.

Stainless Steel . . .

Stainless Steel Prices, Page 98

Philadelphia — While the government has limited sales of specification 347, containing columbium as well as nickel, to DO orders only, restrictions on other stainless nickel alloys are almost as rigid as producers are limiting sales of these grades to defense work also. Chromium grades are offered as substitutes. Fast expanding demand for metal tubes for television sets has not been affected by these restrictions as these components are made of chromium alloy.

Pittsburgh—Jessop Steel Co. advanced stainless clad plates as follows: 10 per cent clad one cent; 20 per cent, 1½ cents per pound in line with price action taken by other producers. Jessop Steel also advanced stainless heat resisting steels ½ to 5 cents per pound.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 95

Los Angeles—Small reinforcing bar producers have accepted tonnage through December. Inquiries are falling. September building construction decreased 26 per cent from August valuation.

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Tin Plate . . .

Tin Plate Prices, Page 96

Pittsburgh—Establishment of separate base prices for electrolytic and hot-dipped tin plate is under consideration. It is proposed the electrolytic base be predicated on .25 pound coating with applicable extras for heavier coatings; a hot-dipped base of 1.25 pound coating is suggested with price differentials for heavier coatings. Present method of quoting tin plate prices is based on 1.50 pound coating hot-dipped grade, with deductions for lighter coatings, including electrolytic. Industry is expected to establish 1951 price schedules around mid-November, about a month ahead of time. Base prices likely also will be established on black plate, holloware enameling stock and special coated manufacturing ternes.

Plates . . .

Plate Prices, Page 95

New York—Plate mills are accepting DO orders for next quarter and are setting up allotments for cars and car repairs for that period, as recently decided upon under the voluntary allocation program. Platemakers estimate these car requirements will amount to approximately 126,000 tons per month out of total steel needs of 310,000 tons.

This tonnage, along with DO requirements, which cannot as yet be accurately estimated, and a probable average carryover of at least a month will considerably restrict the amount of non-rated business the plate mills can accept for first quarter once they open books. In addition, certain other voluntary allocation programs, such as for the oil industry and agricultural implement manufacturers, may also cut into the general commercial supply.

Boston—Although some sheet and strip capacity is being diverted to plates, there is no easing in the plate stringency as more tonnage is marked for specific programs, such as freight car building and large diameter pipe lines. First quarter carryover will be heavy. Spun head deliveries range up to 22 weeks. Nickel clad plates are restricted by shortages of nickel and use of substitute clad material, including straight chromium grades, is encouraged by producers.

Philadelphia—Final plans for the car construction and repair program point to an average monthly allocation for first quarter of 310,000 tons. This means a slight revision in the monthly allocation of plates for this purpose from 140,000 tons to around 126,000 tons. Plans are under way for the setting up of allocations for locomotive repairs. Also likely to have early effect on plate distribution are plans nearing completion for assuring warehouse distributors of a greater amount of steel than now being received.

Birmingham—DO orders are increasing moderately in plates. But even a moderate increase poses an additional problem for mills already unable to meet demands.

Los Angeles — DO system is welcomed by fabricators who see producers clear the tracks for armament tonnage. Plate users, dividing work backlogs into DO business and non-DO business, expect the latter to dry up without ratings.

Seattle—Scarcity of plates is restricting operations of small shops which report volume of business is declining. The larger plants have good backlogs.

Tubular Goods . . .

Tubular Goods Prices, Page 98

Pittsburgh—Galvanized pipe prices were adjusted upward recently to reflect increased zinc costs by National Tube Co., Spang Chalfant Division of National Supply Co., and Wheeling Steel Corp. as follows: $5 per ton on sizes ½ and ¾-inch; $4 on 1 and 1¼-inch; $3 on 1½-inch and larger. Fretz-Moon Tube Co. advanced galvanized pipe $3 per ton on ⅛ and ¼-inch; $4 on ⅜-inch. New galvanized pipe prices established by major producers last week are $2 to $4 per ton under the schedule previously announced by Jones & Laughlin Steel Corp. in size range ¾ through 3 inches for butt weld standard pipe; and $1 to $1.50 per ton under company's seamless pipe schedules.

Automatic adjustments in galvanized pipe discounts to reflect fluctuations in zinc price will be made by National Tube Co. through use of a zinc extra. By variations in the discounts with different pipe sizes a proper relation to the price of zinc and weight of coating can be obtained so that fluctuations in zinc price can be fairly reflected. A discount for pipe, coated with zinc priced at not more than 5.5 cents per pound, constitutes the base discount for galvanized pipe in the respective pipe sizes. For each one-cent change in zinc price above 5.5 cents, the following price adjustments will be made: One discount point or $2 per ton for sizes ½ to 1 inch; ¾ of a point or $1.50 per ton for sizes over 1 to 2 inches, inclusive; and ½ of a point or $1 per ton for sizes over 2 inches.

Base discounts for standard butt weld pipe, established by National Tube Co. to reflect 5.5-cent zinc, are as follows: ½-in., 30.5; ¾-in., 34.5; 1 in., 38; 1¼ in., 35.5; 1½ in., 36.5; 2 in., 37; 2½ in. and 3 in., 34.5. Base discounts on seamless galvanized pipe are: 2 in. through 3 in., 25; 3½ in. through 6 in., 27; 7 in., 26; 8 in., 28; 9 in. and 10 in., 27.5; 11 in. and 12 in., 26.5.

The above action taken by National Tube Co. differs from that previously adopted by Jones & Laughlin in that the latter company's zinc extras reflect zinc costs in excess of 10 cents, and galvanized pipe prices are adjusted upward or downward with every one cent fluctuation in zinc.

Boston—Merchant pipe allocations for December to distributors approximate November volume and some direct shipment orders have been booked for first quarter. Rated orders are few, but some are appearing for tubing, including stainless.

New York—There is an appreciable increase in demand for boiler tubing from the railroads. Whereas a year ago these requirements were tapering rapidly as demand for steam locomotives declined, there is now a spurt in demand to repair the steam locomotives. Another important source of boiler tube demand at one time, the shipyards, has shown few signs of activity. Little new ship construction is under way and repair needs are relatively negligible.

Philadelphia—Leading eastern producer of galvanized pipe has revised price schedules so as to compensate for higher cost of zinc.

Cleveland—With pipemakers booked solidly ahead for months to come buyers are having a difficult time getting all the tonnage they seek. Jobbers' stocks are unbalanced and there is little prospect this situation will be corrected soon with distributors on an allotment basis. Producers are exerting efforts to see that no pipe is diverted into irregular sales channels. Galvanized pipe prices have been advanced by several producers, including Republic Steel Corp., to offset recent increases in the price of zinc.

Seattle—Cast iron pipe demand is seasonally slow, agencies being handicapped by slow deliveries. No important projects are up for bids. Steel pipe is in fair demand.

Wire . . .

Wire Prices, Page 97

Pittsburgh— U. S. Steel Corp.'s subsidiaries established new galvanizing extras on wire products, effective Oct. 21, to reflect production costs in relation to upward or downward adjustments in zinc price.

Since varying amounts of zinc are required to coat different products, the galvanizing extra per 100 pounds varies among the products with each fluctuation in price of zinc. Galvanizing extras on nails are advanced 70 cents per 100 pounds to $3.15 for 15 gage and coarser; $3.65 for finer than 15 gage. For each half-cent per pound fluctuation in zinc, the galvanizing extras on nails will be revised .05-cent per 100 pounds; adjustments in extras for galvanized manufacturers' wire will be 2½ cents per 100 pounds for each 1-cent fluctuation in zinc; base price on fence and barbed wide will be adjusted one column with each 2-cent fluctuation in zinc.

The former galvanizing extras were based on zinc price between 9 and 10 cents per pound, in contrast to recently adopted base of 5-cent zinc. The new galvanizing extras applicable to manufacturers' wire start with an extra of 2½ cents per 100 pounds within zinc price range of 6 to less than 7 cents, and increase in increments of 2½ cents for each additional cent in price of zinc. The former size extra, for example, of size over .192-in. regular hot galvanized manufacturers' wire was $1.10 per 100 pounds. The new galvanizing extra, based on 5-cent zinc, for this size is $1 to which is added 30 cents for zinc extra applicable to 17.5-cent zinc.

Cleveland — Pressure on the wire mills for deliveries is described as "terrific." By far the bulk of tonnage continues to move into civilian consuming channels but military and related orders are rising. Expectations are full impact of the emergency demands on supply will not be

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felt before first and second quarter of next year.

While most producers of wire and wire products have effected some price advances over recent weeks, especially on galvanized items, the American Steel & Wire Co., with the exception of a change in galvanizing extras, continues to hold to its old price schedule. Last week the company, subsidiary of U. S. Steel Corp., announced adoption of new galvanizing extras which will more accurately reflect fluctuations in the price of zinc. The extras vary product by product, maintaining proper relationship to the current price of zinc and the weight of the coating used.

Further adjustments in wire prices continue to be made in this district. Last week Seneca Wire & Mfg. Co., Fostoria, O., announced an increase of 50 cents per 100 pounds on cold-rolled flat wire to $6, mill.

Boston—Assignment of DO ratings to some old orders, permits December scheduling of limited tonnage, but for most part volume in that category will be processed in January or later, notably orders booked during next few weeks. Most wire mills have been scheduling on shorter lead time than normal and unless armament tonnage comes heavier than expected, adjustment to 45 days should not be difficult.

Defense buying has been heaviest on signal wire WD-1 by procurement agency, Philadelphia; five New England mills booked as many contracts for a total of 52,187 miles, amounting to $4,151,392. Sharing tonnage are: Whitney-Blake Co., New Haven, Conn.; General Insulated Wire Works, Providence, R. I.; Plastic Wire & Cable Co., Jewett City, Conn.; Simplex Wire & Cable Co., Cambridge, Mass.; and Rhode Island Insulated Wire Co., Cranston, R. I.

Birmingham—Wire supplies are extremely short. Supply sources are able to furnish only part of current needs and in some items, especially nails, stocks are extremely low.

Los Angeles—Wire rope is the only product of Columbia Steel Co. not on allocation.

Structural Shapes . . .

Structural Shape Prices, Page 95

New York—Fabricating shop deliveries are increasingly extended. One large shop here can no longer accept work for delivery under 10 to 11 months. This reflects not only active building, but also the outlook for continued restriction in supply of plain material.

The 7500-ton bridge project for Newark, N. J., up for bids around the end of this month, about winds up the New Jersey Turnpike program. This is requiring about 110,000 tons of structural shapes, in addition to heavy tonnages of reinforcing bars and other types of construction steel.

The New York throughway program will require approximately as much steel and is now getting into swing. About 6000 to 7000 tons of shapes, directly identified with that program, have been placed and more is scheduled soon.

Philadelphia — With increasing stringency in shapes fabricators are booking conservatively as reflected in more extended delivery promises. Certain fabricators are now quoting 10 months and beyond.

The new freight car and car repair program will require an average of 65,000 tons of shapes per month during first quarter, and certain other programs are shaping up under government sponsorship which will place still more tonnage in the preference category at the expense of building construction. Work has been completed by NPA on controls banning construction of various types of recreational facilities, including theaters, dance halls and bowling alleys.

Boston—Ratio of bookings over shipments has increased sharply the last two months, widening gap being due to relatively greater decline in shipments. In part this is traceable to tightening supply of plain material. New inquiry is off some, but shops are reluctant to estimate additional tonnage in view of uncertain steel outlook.

Birmingham—Inquiries for structural shapes are numerous. Fabricators are well booked on current work.

Seattle — Fabricating plants are severely handicapped by material shortages and are conserving inventory, to insure uninterrupted operations, by bidding only on small jobs. Several important jobs are up for early decision.

Metallurgical Coke . . .

Metallurgical Coke Prices, Page 98

Cincinnati—Oven foundry coke is up $1.10 to $21.50, base, Ironton, O. Demand exceeds supply, but major producers foresee an easing in the situation with strikes at ovens settled.

Semifinished Steel . . .

Semifinished Prices, Page 95

Pittsburgh — Some non-integrated sheet and strip producers are charging about $41 per net ton for converting hot bands to 18 gage cold-rolled coils and sheets, including packing, oiling and handling. This conversion charge compares with $31 last spring and about $39 at previous peak in sheet and strip shortage around August, 1948. Pickling extra is unchanged from last spring at $10 a net ton, but is double that charged in the summer of 1948. In general the increase in charge for converting bands to sheets and strip has increased $10 per net ton since last spring throughout the finished product gage range of 18 to 30 gage. Another indication of the extent of the tightening in sheet and strip supply is an advance in price of slabs from $70 last spring to current level of $100 per ton.

Iron Ore . . .

Iron Ore Prices, Page 99

Cleveland—Deficit in shipments of ore from United States ports this season compared with those for the like period a year ago has been cut to only 1,244,552 tons as the movement continues close to peak capacity. Shipments totaled 2,572,106 tons from United States ports and 68,467 tons from Canadian ports in the week ended Oct. 23, making a total of 2,640,573 tons against 2,548,213 tons in the preceding week. The movement was negligible a year ago due to the steel strike. Shipments for the season to Oct. 23 amount to 67,146,442 tons against 68,211,337 tons for the like 1949 period.

Tool Steel . . .

Tool Steel Prices, Page 97

Philadelphia—While tool steels are still readily available in a wide range of specifications, demand is beginning to pick up for the first time since World War II.

Pig Iron . . .

Pig Iron Prices, Page 94

Boston — Chances for additional iron from Buffalo and eastern Pennsylvania are remote, but consumers of foundry grades, having built up stocks moderately, are not pressing too hard. Rise in melt appears to have leveled off and armament requirements are not high. Watertown arsenal bought 260 tons of special analysis.

New York—Alan Wood Steel Co., Swedeland, Pa., advanced prices on pig iron $3 a ton, effective Oct. 23. This brings its schedule up to $53 furnace for basic, $53.50 for No. 2 foundry, $54 for malleable and $54.50 for bessemer, although the latter price is more or less nominal. This advance is in line with increases by other producers over the past several weeks.

Buffalo—Automotive foundries lead the rush for merchant pig iron. Railroad casting shops also are taking large tonnages. Demand for government work is limited. Delays in shipments are reported due to car shortages.

Philadelphia—Advance of $3 a ton at Swedeland, Pa., on pig iron has restored the $2 differential which had prevailed over the Bethlehem furnace prices. Accordingly, minimum delivered prices here are once more on the Bethlehem base. These prices are now $53.39, delivered, for basic, $53,89 for No. 2 foundry, $54.39 for malleable, and $54.89 for bessemer. Iron is in increasingly tight supply. Purchase of foreign malleable at approximately $60, f.a.s. Philadelphia, indicates the upward trend of foreign prices.

Pittsburgh—The railroads have settled on a rate of $7.50 per long ton (2240 lbs.) for transporting imported pig iron from Baltimore to Pittsburgh, it is reported. While tariffs have not been posted it is expected the $7.50 rate will become effective Dec. 1. The carriers had been talking about an $8.18 rate. Steel companies still say they want a rate of $6.60.

Cleveland—Pressure for pig iron supplies is unrelieved in the merchant market. Suppliers are alloting tonnage as equitably as possible but expanding foundry operations are outdistancing raw material supplies. Increasing dependence is being placed by the foundries on scrap, reflected in the recent sharp advance in prices on cast grades. With the exception

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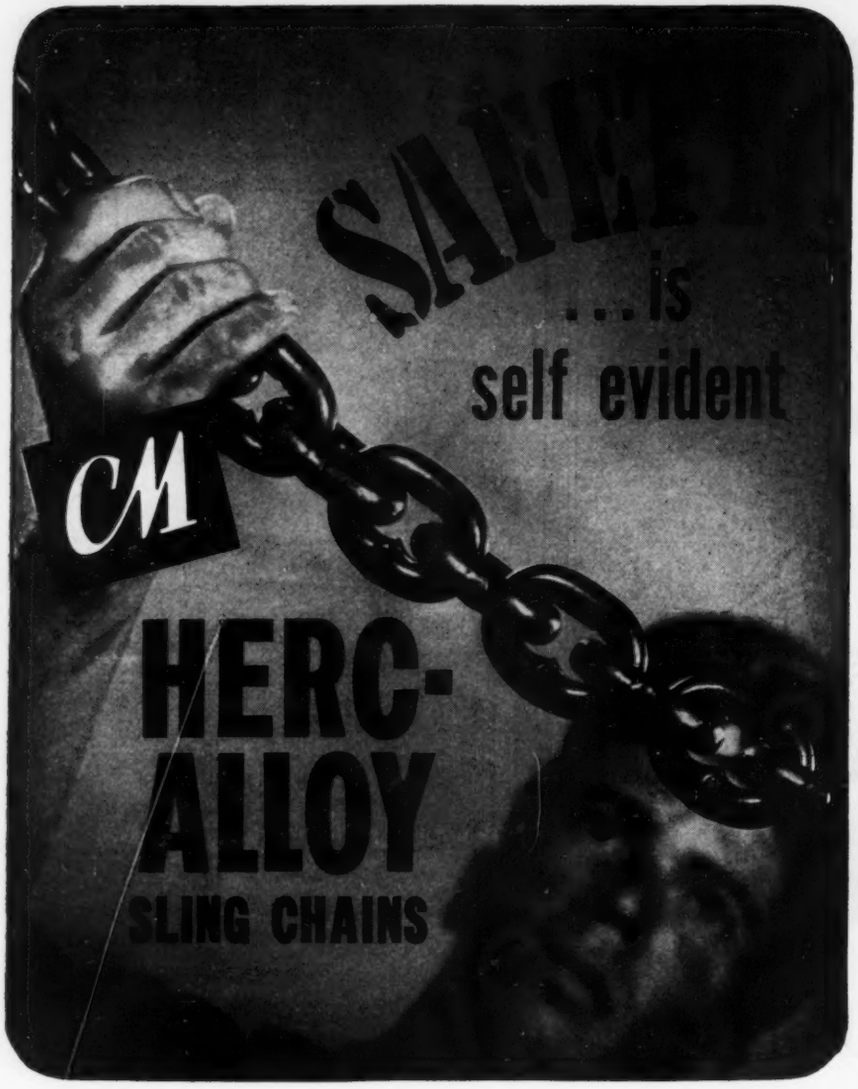

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of the U. S. Steel Corp. subsidiaries, all merchant iron sellers now are quoting pig iron at the $3 per ton advance initiated about a month ago. Last week producers of blast furnace silvery pig iron advanced prices $2.50 per ton to $59.50, furnace.

Cincinnati—Increase in price of foundry coke adds another factor to advancing costs in production of castings. District melters are busier than at any time this year with prospects bright for expanding demand from machine tool builders. Pig iron supplies are extremely tight.

Chicago—Blast furnace operations have been augmented by the relighting of Carnegie-Illinois' "E" stack at South Works, bringing 40 out of 42 district stacks into operation. One is down for rebuilding and enlarging, the other is idle for lack of coke. Several stacks are on reduced wind because of the coke stringency. Split price structure remains in effect.

St. Louis — Pig iron demand continues to mount as more foundries hit capacity operations. Iron makers report few DO priorities offered so far, but are considering changing their "standard" 45-55 per cent foundry and basic production ratio to hike the latter. Installment credit controls on consumer goods likely will be reflected in slightly lower foundry iron demand.

Birmingham—Pig iron demand increases. New sources of demand develop constantly but merchant melters are unable to take on more tonnage.

Scrap . . .

Scrap Prices, Page 102

Boston—Additional strength in cast scrap prices is supported by sustained demand and limited supply. Mixed cast is $2 higher; other grades are following much the same path with buying by both district and outside consumers. No. 1 machinery is close to $50, delivered, to most New England consuming points and higher in longer freight areas. Steel scrap is firm at near formula prices, but tonnage is being held back by holders in more instances in expectation of a break-through.

New York—Little No. 1 heavy melting and No. 1 bundles are moving at prices that brokers are willing to pay. Hence, the market on these two grades is temporarily nominal. List otherwise is unchanged except for charging box and heavy breakable for which brokers are now having to pay $39-$40, f.o.b. shipping point, in order to get the material.

Buffalo—Strength dominates the market for blast furnace grades, sales of borings and turnings being reported within a range of $35-$36, up $3.50 to $4. Sales of cupola cast are being made at the prevailing range of $44-$45. Dealers continue to ship against extended contracts. Leading mills report huge reserve stockpiles.

Philadelphia — Marked strength characterizes the scrap market. No. 1 heavy melting steel and No. 1 bundles are higher at $39-$43, delivered, with some small sales on standard material reported at even higher lev-

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Courtesy Cliffside Body Corporation

The "bones" in this skeleton are square steel tubes, welded together to make a stiff, rigid frame. The idea, used here to form a truck body, is easily adapted – you may find it profitable.

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els. No. 2 heavy melting steel is stronger at $36-$37, machine shop turnings, $29-$30. Low phos grades have stiffened to $48-$49; electric furnace bundles, to $45. Knuckles and couplers and steel car wheels are higher at $51-$52.

Special strength is noted in cast grades and, were it not for the importation of fairly substantial quantities, the market would be even higher than the new prices now being done. No. 1 cupola is selling at $50-$51, delivered; No. 1 machinery cast, $53-$54; No. 1 yard cast, $49-$50. Charging box cast is higher at $50-$51; heavy breakable cast, $49. No. 1 wheels are higher at $60, although this price is largely nominal because of the return of wheels by railroads to the manufacturers in exchange for new wheels. Malleable is strong at $64.

Pittsburgh—Brokers and dealers have completed bulk of shipments on previous commitments of open hearth grades at formula prices. Mills are expected momentarily to re-enter the market for large tonnages of dealer scrap for November delivery. There is strong pressure for higher prices, but major consumers contend they are going to stick to formula prices. No change in quotations is noted on low phos, cast grades and railroad steel items from levels recently reached. The high prices have brought out considerable tonnage offerings, temporarily alleviating scarcity of pig iron.

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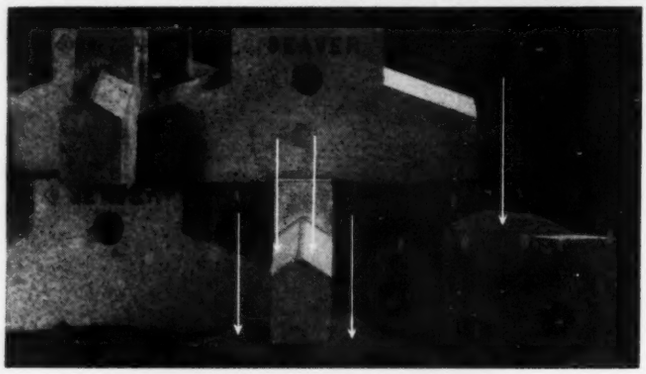

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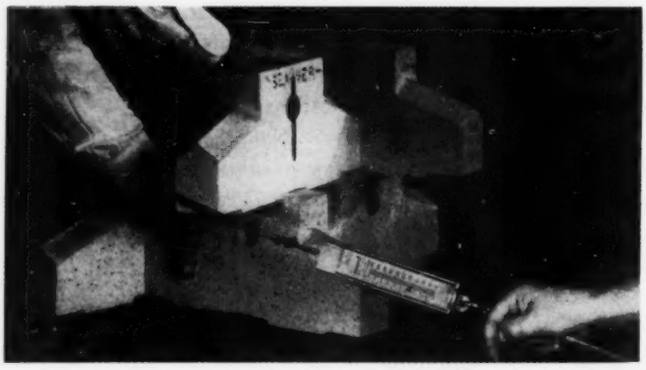
The Seaver Double Bevel Shed Roof design of Checker Brick is *always clean*—gives high heat exchange—causes turbulence and wire drawing with no top flat surface exposed. Ordinary flat, rectangular checker brick accumulate dirt which forms an effective insulation against the transfer of heat and closes the openings . . . and the wider the brick the greater the dirt accumulation and clogging with less transfer of heat.



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Cost based on square feet of heating surface comparable to ordinary brick.

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Cleveland—Scrap prices are unchanged here, No. 1 heavy melting still holding at $43-$43.50. Tonnages are flowing in good volume to the mills, sustaining present high operating rates but not permitting much stockpiling of winter reserves. Some interests believe that somewhat higher price level will be required to bring out limited tonnages being withheld for that development. Mills are expected to re-enter the market for large tonnages early in November. Cast iron grades remain particularly strong on the basis of $62-$63 for No. 1 cupola.

Detroit—It is too early to get a clear line on what the latest automotive lists are bringing, although the consensus is that prices are holding firmly. There is a feeling that after the election the government may be asked to establish price controls on scrap. Quotations on borings and turnings have been revised upward in view of the new differentials between this material and No. 1 bundles.

Cincinnati—Undertone of the scrap market is strong, pushing up prices on most foundry and railroad grades. Formula prices are holding on open-hearth grades. Prices being paid for conversion steel are a disturbing factor in the market. District increase in steelmaking capacity and booming demand for castings are placing enlarged demands on scrap supply.

Chicago — Mill orders for open-hearth grades of scrap have turned sour for traders. Most brokers are paying at least the consumer price. No indication is given that next purchases will be at above-formula levels, although it took mills two weeks or more to obtain contracts at those prices when they last bought. Meanwhile, cast scrap is eagerly sought by all interests. Cut rails advanced $2 a ton. Low phos is stronger.

St. Louis—Tighter supplies of steel scrap and shortages of pig iron continue to push railroad scrap prices higher. Advances in prices on cast grades have turned many foundries from cast to railroad steel charges. Scrap market is strengthened by the fact consumers no longer think price controls are imminent and are hurrying to make postponed purchases. Southern melters are entering this district, bidding higher and offering lenient specifications. There is a $2 spread in nearly all quotations and dealers are operating on an unusually wide bid and ask basis.

Birmingham—Activity in scrap is marked, and additional agricultural tonnage is showing up under the impetus of higher prices and cooler weather. The price trend is definitely upward.

Seattle — Scrap supply continues critical, local sources being unable to meet the demands of mills operating at capacity. Another cargo from Europe is due at Bethlehem's local plant early in November. Some material has come from the Aleutians, but transportation from that area is costly. While Nos. 1 and 2 heavy melting are listed at $24, this figure is nominal and all deals are subject to negotiation. Higher prices are being paid. The entire market is strong, the current problem being to obtain sufficient material to keep the mills running at the present high rate of operation.

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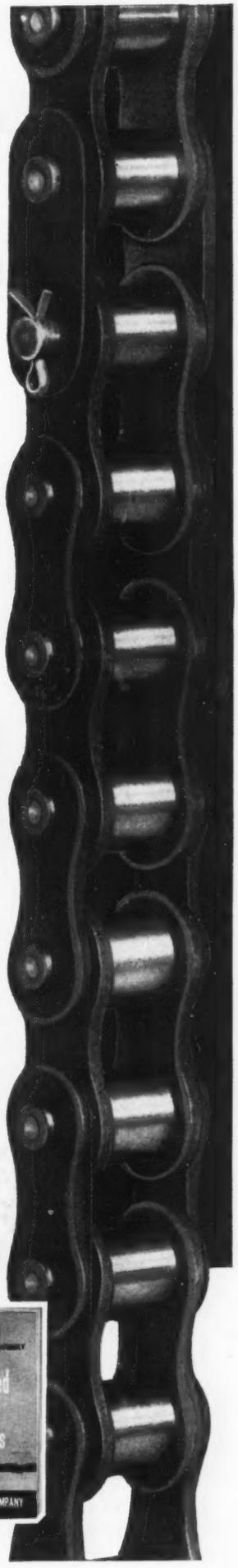
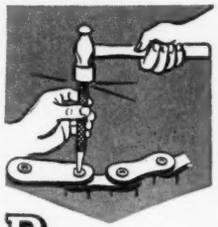


This distinctive link marks the new "BA" . . . Baldwin Assembly . . . riveted roller chain. And it's the mark of long, low-cost service.

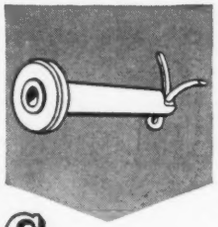
The new "BA" assembly roller chain gives you all the advantages of riveted roller chain . . . longer life . . . even greater ease of field assembly and disassembly than with old style detachable roller chains . . . and in single strand, lower cost.

HERE'S HOW SIMPLE IT IS TO TAKE APART *THIS* ROLLER CHAIN!

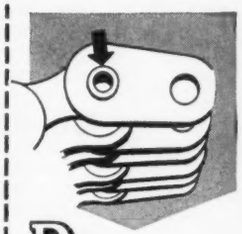
A The single pin connector is the heart of the "BA" assembly and is readily identified by its distinctive shape. One pin in this link has a cotter on one end; the other end is spun over a washer. The other pin is fully riveted to the adjacent link, thus assuring the assembly of the superior life of riveted chain.



B To take the chain apart, simply remove the cotter on the single pin connector link and drive out the pin. Pin is a slip fit through the chain except for a milled flat on the cottered end which is fitted into a special hole in the connector plate. There is no danger of destroying fits or damaging parts with this chain.



C The single pin connector of the "BA" assembly fits snugly into place . . . even though it is a slip fit through virtually the entire link. The washer spun over one end of the pin and the milled flat on the cottered end that is fitted into the special hole in the connector plate, plus the cotter, hold the pin firmly in place.



D An important advantage to you is the fact that the other end of the single pin connector link is firmly riveted to the adjacent link. When the single pin connector is removed, this riveted pin holds the chain parts together, thus keeping plates in line and preventing them from falling out, simplifying assembly.

For all the facts on "BA" assembly, write Chain Belt Company, Baldwin-Duckworth Division, 326 Plainfield St. Springfield 2, Mass., and ask for Bulletin 50-6.

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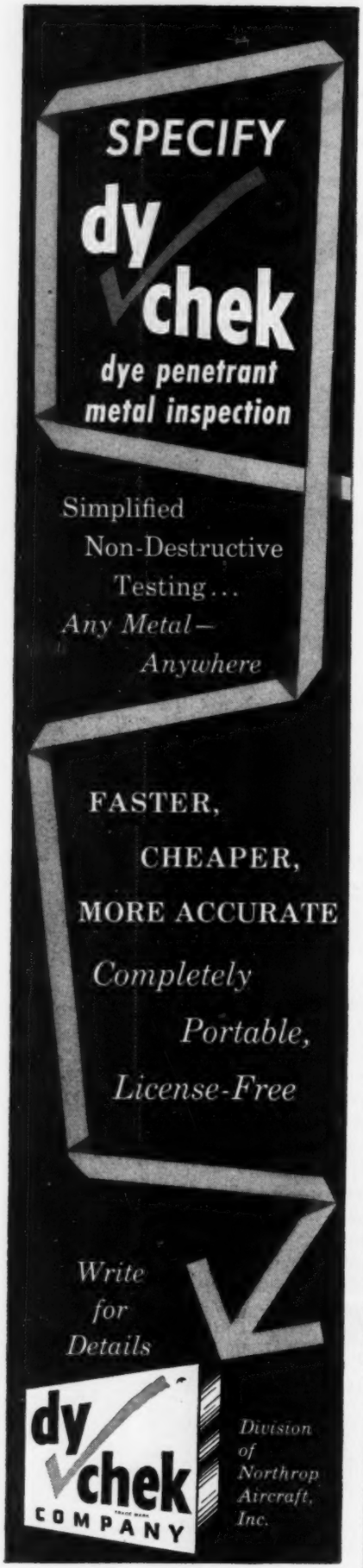

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Warehouse . . .

Warehouse Prices, Page 99

Cleveland — Inventory position of local warehouses is gradually deteriorating under impact of enlarged consuming demand and slower mill shipments. Tonnage is moving out of distributors' plants faster than it is being replaced by shipments from mills. As a result, stocks in virtually all categories are highly unbalanced. The situation is especially acute in the light, flat-rolled items and plates. Distributors are hopeful of some relief through issuance of priority directives on the mills which will assure replacement of stocks shipped on DO or other emergency ratings.

Cincinnati — Warehouses report sales this month may be off 25 per cent from September volume solely because of short stocks. Specifications for building projects are declining.

Chicago—Abnormal demands on warehouses have reduced stocks, in some cases to one-third of what they were last year in spite of record-breaking intake. No product category is in adequate supply. There are, however, a few slow-moving sizes despite prevalence of substitutions. DO orders are not yet playing an important role in warehouse business.

Seattle — Demand for warehouse steel continues strong, although not at the record levels of August. Mill allocations are in effect; consequently, stocks are below normal and badly broken. Cold-finished bars are more active.

Canada . . .

Toronto, Ont.—Production of primary iron and steel shapes in Canada in July amounted to 346,040 net tons against 369,783 tons in June and 259,882 tons in July, 1949. Shipments for sale amounted to 221,792 net tons, compared with 248,322 in June and 182,658 in July, 1949.

Of July shipments 34,789 tons went to railways and railway car shops; 11,523 tons to pressing, forming and stamping plants; 26,684 tons to merchant trade products; 29,744 tons to building construction; 23,566 tons to the containers industry; 8640 tons to agricultural equipment; 14,121 tons to the automotive industry; 8005 tons to machinery plants; 1727 tons to shipbuilding; 16,231 tons to mining, lumbering, etc., 868 tons to miscellaneous industries; wholesalers and warehousing accounted for 26,923 tons and exports for 16,816 tons.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

1600 tons, hospital, lower Merion township, Pennsylvania, to Belmont Iron Works, Eddystone, Pa.

175 tons, addition, central office building, Duamond State Telephone Co., Wilmington, Del., to Bethlehem Steel Co.

165 tons, SKF Industries Inc. plant addition, Philadelphia, through Leonard Shaffer, that city, to Bethlehem Steel Co.

110 tons, highway section, James J. Storrow Memorial drive, Boston, (65 tons) structurals, West End Iron Works, Cambridge, (45 tons) bars, Truscon Steel Co., Boston; Monroe-Langstroth Inc., North Attleboro, Mass., general contractor.

100 tons, laundry building, state hospital, Norwich, Conn., to Topper & Griggs (Bethlehem Fabricators Inc.) Hartford, Conn.; Associated Construction Co., Hartford, general contractor; same shop awarded 35 tons, reinforcing steel.

100 tons or more, housing project, Bristol, Conn., to City Iron Works Inc., Hartford, Conn.; Anderson Fairoaks Construction Co., Hartford, general contractor.

STRUCTURAL STEEL PENDING

4600 tons, municipal hospital, Bronx, New York; Gerace & Castagna, Bronx, low on general contract.

4050 tons, steel bearing piles, No. 45-A turnpike bridge substructure, Newark, N. J.; bids Oct. 31.

1800 tons, building, Brooklyn College, Brooklyn, N. Y.; Warshaw & Weitzner, New York, low on general contract.

575 tons, Washington state truss bridge, Skagit county; bids in.

500 tons, joint Idaho-Oregon Snake river highway bridge; bids in.

500 tons or more, gates, guides, stoplogs, etc., Detroit dam, Oregon. Pacific Coast Engineering Co., Alameda, Cal., $111,000 and Schmitt Steel Co., Portland, Oreg., $20,491, low respectively on two schedules.

390 tons, state bridge, Lucerne county, Pennsylvania; bids Nov. 22.

350 tons, state bridges, Allegheny and Westmoreland counties, Pennsylvania; bids Nov. 22.

205 tons, including 90 tons of bar joists, junior-senior high school, Grafton, Mass.; M. J. Dyer & Co., Worcester, Mass., general contractor.

190 tons, building, Du Pont interests, Carneys Point, Pa.; bids asked.

146 tons, state bridge, Northumberland and Montour counties, Pennsylvania; bids Nov. 10.

135 tons, clear span composite steel girder bridge, Providence street, Putnam, Conn.; bids Oct. 30, Hartford, Conn.

128 tons, Morrisville, N. J., bridge approach, Delaware River Joint Toll Bridge Commission; bids Nov. 2.

115 tons, Bureau of Public Roads Chetco river bridge, Oregon; Tom Lillebo, Reedsport, Oreg., low $92,510; all bids rejected.

Unstated, five steel and concrete structures for Hanford plant, Washington state; bids to General Electric Co., Richland, Wash., general contractor, about Dec. 20.

REINFORCING BARS . . .

REINFORCING BARS PLACED

200 tons, sewage treatment plant, Laconia, N. H., to Bethlehem Steel Co.; Northern Construction Co., Lawrence, Mass., general contractor; Builders' Iron Works, structural steel.

180 tons, old peoples home, Lewiston, Idaho and dry kiln, Everett, Wash., to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

2200 tons, turnpike bridge, Newark, N. J.; bids Oct. 31. Of this total, 1300 tons are for substructure, No. 45-A, and 900 tons for superstructure, No. 45-B.

700 tons, elevated structures and new highways, East Boston expressway, Boston; bids Oct 31; also 7950 linear feet of steel sheet piling and 5940 linear feet of steel curb.

345 tons, Bald Mountain pressure tunnel and roads; bids Nov. 16, Bureau of Reclamation, Loveland, Colo.

140 tons, group buildings, Elmendorf air force base, Alaska; Morrison-Knudsen Co., Seattle, low, on alternative completion dates.

PLATES . . .

PLATES PLACED

1500 tons, Detroit dam, Oregon, penstocks, to American Pipe & Construction Co., Portland; Consolidated Builders, general contractors.

PLATES PENDING

3745 tons, Navy, inv. 4041; bids Nov. 1, Washington Purchasing Office; also 165 tons, inv. 4042, bids Nov. 2.

600 tons, additional penstocks Cushman power plant; bids in to Tacoma, Wash., light department.

130 tons, interlocking sheet steel piling; bids in to Bonneville Power Administration.

Unstated tonnage, 100,000-gal elevated water tank, East Petersburg, Lancaster county, Pennsylvania; bids Nov. 3.

PIPE . . .

CAST IRON PIPE PENDING

1000 tons, 20 inch cast iron pipe, Ship Creek power plant project, Alaska; bids in to U. S. Engineer, Anchorage.

STEEL PIPE PENDING

Unstated, 3340 feet, 12 inch steel pipe, King county water district No. 42, Seattle; Superior Construction Co., Seattle, general award, low $14,422.

RAILS, CARS . . .

LOCOMOTIVES PLACED

Chicago, Milwaukee, St. Paul & Pacific, six 4800-hp diesel-electric freight engines, to Fairbanks, Morse & Co., Chicago.

Commonwealth Railways of Australia, three rail diesel cars, to Budd Co., Philadelphia.

RAILROAD CARS PLACED

Baltimore & Ohio, 4000 fifty-ton hopper cars, 1000 each going to the American Car & Foundry Co., New York, General American Transportation Co., Chicago, Pullman-Standard Car Mfg. Co., Chicago, and Bethlehem Steel Co., Bethlehem, Pa.

Sunray Oil Co., 200 liquid petroleum gas tank cars, to American Car & Foundry Co., New York.

Texas & Pacific, 250 freight cars, comprising 150 seventy-ton gondolas and 100 fifty-ton flat cars, to Marshall, Tex., shops; 100 seventy-ton covered hoppers and 250 seventy-ton covered hoppers and 250 seventy-ton open hoppers to American Car & Foundry Co., New York; 200 fifty-ton steel box cars to Pressed Steel Car Co., Chicago.

West India Fruit & Steamship Co., 150 forty-foot box cars to American Car & Foundry Co., New York.

RAILS PLACED

Southern Pacific, rail for 556 miles of track, to the Colorado Fuel & Iron Corp., Denver, and Columbia Steel Co., San Francisco; orders for the rail and rail fittings for this program cost $14.4 million.

FERROALLOYS

(*Continued from page 99*)

Low-Carbon Ferrochrome: (Cr 67-72%). Contract, carload, lump, bulk, max. 0.03% C 31.85c per lb of contained Cr, 0.04% C 29.75c, 0.06% C 28.75c, 0.10% C 28.25c-28.5c, 0.15% C 28.0c, 0.20% C 27.75c, 0.50% C 27.5c, 1% C 27.25c, 1.50% C 27.1c, 2% C 27.0c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome, Nitrogen Bearing: Add 5c to 0.10% C low-carbon ferrochrome prices for approx. 0.75% N. Add 5c for each 0.25% of N above 0.75%.

Foundry Ferrochrome, High Carbon: (Cr 62-66%, C 5-7%). Contract, c.l. 8 MxD, bulk, 22.0c per lb of contained Cr, c.l., packed 22.9c, ton 24.25c, less ton 26.0c. Delivered. Spot, add 0.25c.

Foundry Ferrochrome, Low Carbon: (Cr 50-54%, Si 28-32%, C 1.25% max.) Contract, Carload, packed, 8 MxD, 15.35c per lb of alloy; 1 ton, 16.2c; less ton lot, 17.4c, delivered; spot, add 0.25c.

Low-Carbon Ferrochrome Silicon: (Cr 34.41%, Si 42-49%, C 0.05% max.) Contract, carload, lump, 4" x down and 2" x down, bulk, 20.50c per lb of contained chromium plus 11.30c per pound of contained silicon; 1" x down, bulk 20.65c per pound of contained chromium plus 11.50c per pound of contained silicon. F.o.b. plant; freight allowed to destination.

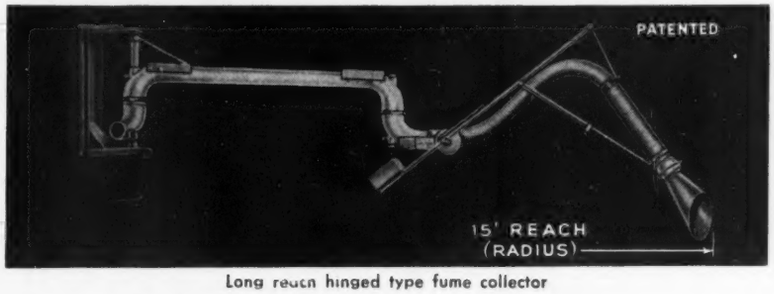
Ferrochrome Silicon, No. 2: (Cr 36-39%, Si 36-39%, Al 7-9%, C 0.05% max.) 20.5c per lb of contained silicon plus 11.3c per lb of con-

"Ruemelin Fume Collectors certainly have a powerful suction. We welders like them because they do a good job of taking away smoke and heat."

Long Reach Hinged Type Fume Collector Extends Working Range

Welding shops equipped with Ruemelin Fume Collectors enjoy a clean working atmosphere. Smoke, heat and gas are removed quickly and efficiently. Working conditions greatly improved . . . production increased. For the large welding booth, a long reach model (shown below) makes it easy to reach any welding job. 15 ft. and 18 ft. sizes. Available in wall type or underslung ceiling type brackets.

Portable models also available. Write for Fume Collector Bulletin 37-D.



Long reach hinged type fume collector

RUEMELIN MFG. CO.

MANUFACTURERS AND ENGINEERS
SAND BLAST AND DUST COLLECTING EQUIPMENT
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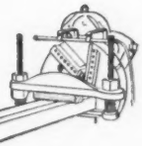
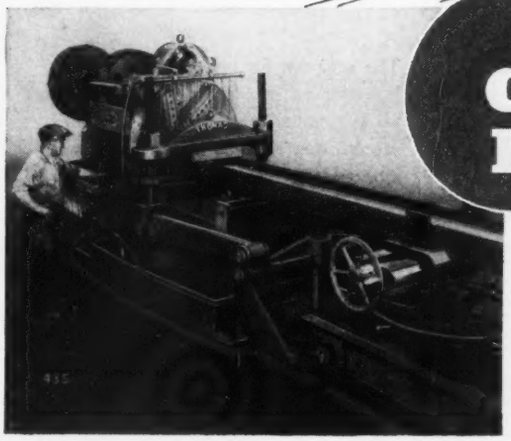
THE TREND IS TO THOMAS

FOR *Column End-Facing*





THOMAS COLUMN FACERS

- Rim Driven Cutter Head with angle offset blades
- Anti-friction bearings
- Quick-Acting Pneumatic Clamp
- Hydraulic Feed

Write for Bulletin 316

THOMAS MACHINE MANUFACTURING COMPANY
PITTSBURGH (23), PA.

8A

PUNCHES • SHEARS • PRESSES • BENDERS • SPACING TABLES

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tained silicon plus aluminum, 3" x down, delivered.

Chromium Metal: (Min. 97% Cr and 1% Fe). Contract carload, 1" x D; packed, max 0.50% C grade, $1.03 per lb of contained chromium, ton lot $1.05, less ton $1.07. Delivered. Spot add 5c.

Silicon Alloys

25-30% Ferrosilicon: Contract, carload, lump, bulk, 17.00c per lb of contained Si; packed 18.40c; ton lot 19.50c, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 11.3c per lb of contained Si, carload packed 12.9c, ton lot 14.35c, less ton 16c. Delivered, Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

75% Ferrosilicon: Contract, carload, lump, bulk, 13.5c per lb of contained Si, carload packed 14.8c, ton lot 15.95c, less ton 17.2c. Delivered, Spot, add 0.8c.

80-90% Ferrosilicon: Contract, carload, lump, bulk, 14.65-15.0c per lb of contained Si, carload packed 15.9c, ton lot 16.9c, less ton 18.05c. Delivered, Spot, add 0.25c.

Low-Aluminum 85% Ferrosilicon: (Al 0.50% max.) Add 0.7c to 85% ferrosilicon prices.

90-95% Ferrosilicon: Contract, carload, lump, bulk, 16.5c per lb of contained Si, carload packed 17.7c, ton lot 18.65c, less ton 19.7c. Delivered. Spot, add 0.25c.

Low-Aluminum 90-95% Ferrosilicon: (Al 0.50% max.). Add 0.7c to 90-95% ferosilicon prices.

Silicon Metal: (Min. 97% Si and 1% max. Fe). C.l. lump, bulk, regular 19.0c per lb of Si, c.l. packed 20.2c, ton lot 21.1c, less ton 22.1c. Add 1.5c for max. 0.10% calcium grade. Deduct 0.4c for max. 2% Fe grade analyzing min. 96% Si. Spot, add 0.25c.

Alsifer: (Approx. 20% Al, 40% Si, 40% Fe) Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 8.65c per lb of alloy, ton lots packed 10.05c, 200 to 1999 lb 10.40c, smaller lots 10.90c. Delivered. Spot up 0.5c.

Briquetted Alloys

Chromium Briquets: (Weighing approx. 3¾ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 13.75c per lb of briquet, carload packed 14.45c, ton lot 15.25c, less ton 16.15c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk 10.45c per lb of briquet, c.l. packaged 11.25c, ton lot 12.05c, less ton 12.95c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 10.30c, per lb of briquet, c.l. packaged 11.1c, ton lot 11.9c, less ton 12.8c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si) Contract, carload, bulk 6.15c per lb of briquet, c.l. packed 6.95c, ton lot 7.75c, less ton 8.65c. Delivered. Spot, add 0.25c.
(Small size—weighing approx 2½ lb and containing exactly 1 lb of Si). Carload, bulk 6.30c, c.l. packed 7.10c, ton lot 7.90c, less ton 8.80c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each) $1.04 per pound of Mo contained, f.o.b. Langeloth, Pa.

Calcium Alloys

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 19.25c per lb of alloy, carload packed 20.05c, ton lot 21.55c, less ton 22.55c. Delivered. Spot add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 17.9c per lb of alloy, carload packed 19.1c, ton lot 21.0c, less ton 22.5c. Delivered. Spot add 0.25c.

Titanium Alloys

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max., Si 4% max., C 0.10% max.). Contract, ton lots 2" x D, $1.40 per lb of contained Ti; less ton $1.45. (Ti 38-43%, Al 8% max., Si 4% max., C 0.10% max.) Ton lot $1.28, less ton $1.35, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot, add 5c.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract $167 per net ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi river and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21 %, C 3-4.5%.) Contract, $183 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

Vanadium Alloys

Ferrovanadium: Open-hearth Grade (Va 35-55%, Si 8-12% max., C 3-3.5% max.). Contract, any quantity, $2.90 per lb of contained Va. Delivered. Spot, add 10c. **Crucible-Special Grades** (Va 35-55%, Si 2-3.5% max., C 0.5-1% max.), $3. **Primos and High Speed Grades** (Va 35-55%, Si 1.50% max., C 0.20% max.) $3.10.

Grainal: Vanadium Grainal No. 1, 93c per lb; No. 6 63c; No. 79, 45c, freight allowed.

Vanadium Oxide: Contract, less carload lots $1.20 per lb contained V_2O_5, freight allowed. Spot, add 5c.

Tungsten Alloys

Ferrotungsten: (70-80%). Contract, 10,000 lb W or more, $2.50 per lb of contained W; 2000 lb W to 10,000 lb W, $2.60; less than 2000 lb W, $2.72. Spot, add 2c.

Tungsten Powder: (W 98.8% min.). Contract or spot, 1000 lb or more, $3.40 per lb of contained W; less than 1000 lb W, $3.50.

Zirconium Alloys

12-15% Zirconium Alloy: (Zr 12-15%, Si 39-43%, Fe 40-45%, C 0.20% max.). Contract, c.l., lump, bulk 6.6c per lb of alloy, c.l. packed 7.35c, ton lot 8.1c, less ton 8.95c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Contract carload, lump, packed 20.25c per lb of alloy ton lot 21c, less ton 22.25c. Freight allowed. Spot, add 0.25c.

Boron Alloys

Ferroboron: (B 17.50% min., Si 1.50% max., Al 0.50% max., C 0.50% max.). Contract, 100 lb or more, 1" x D, $1.20 per lb of alloy. Less than 100 lb $1.30. Delivered. Spot, add 5c. F.o.b. Washington, Pa., prices 100 lb and over are as follows: Grade A (10-14% B) 75c per pound; Grade B (14-18% B) $1.20; Grade C (19% min. B) $1.50.

Borosil: (3 to 4% B, 40 to 45% Si), $4.25 per lb contained B, f.o.b. Philo, O., with freight not to exceed railroad freight allowed to destination.

Bortam: (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 1 to 2%) contract, lump carloads 9.50c per lb, f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

Other Ferroalloys

Ferrocolumbium: (Cb 50-60%, Si 8% max., C 0.4% max.). Contract, ton lot, 2" x D, $3.50 per lb of contained Cb, less ton $3.55. Delivered. Spot, add 10c.

Ferrotantalum—Columbium: (Cb 40% approx., Ta 20% approx., and Cb and Ta 60% min., C 0.30 max.) ton lots, 2" x D, $2.67 per lb of contained Cb plus Ta, delivered; less ton lots $2.72.

Silcaz Alloy: (Si 35-40%, Ca 9-11%, Al 6-8%, Zr 3-5%, Ti 9-11%, B 0.55-0.75%). Carload packed, 1" x D, 43c per lb of alloy, ton lot 45c, less ton 47c. Delivered.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx.). Contract, carload, packed, ½" x 12 M, 16.5c per lb of alloy, ton lots 17.25c, less ton 18.5c. Delivered. Spot, add 0.25c.

Graphidox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 17.0c per lb of alloy; ton lots 18.0c; less ton lots 19.50c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed, 14.25c per lb of alloy; ton lots 15.75c; less ton lots 17.00c, f.o.b., Niagara Falls, N. Y.; freight allowed to St. Louis.

Simanal: (Approx. 20% each Si, Mn, Al). Lump, bulk, carload 11.00c. Ton lots, bulk 11.50c, packed 11.75c. Less ton lots, packed 12.25c per lb of alloy, f.o.b. Philo, O., with freight not to exceed railroad freight allowed to destination.

Ferrophosphorus: (23-25% based on 24% P content with unitage of $3 for each 1% of P above or below the base); carloads, f.o.b. seller's works, Mt. Pleasant, or Siglo, Tenn., $65 per gross ton.

Ferromolybdenum: (55-75%). Per lb, contained Mo, f.o.b. Langeloth, $1.22; Washington, Pa., furnace, any quantity $1.13.

Technical Molybdic-Oxide: Per lb, contained Mo., f.o.b. Langeloth $1.04, packed in bags containing 20 lb of molybdenum; Washington, Pa., 95.00c.

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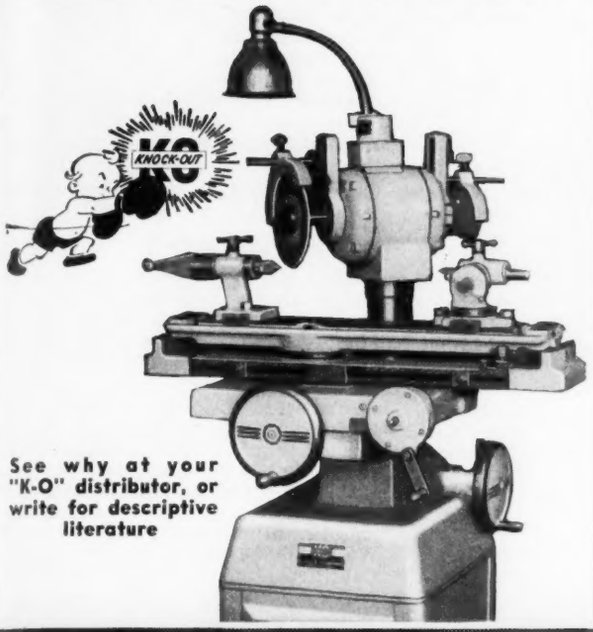

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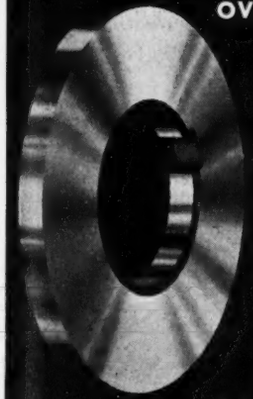

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Metalworking Briefs

CONSTRUCTION, ENTERPRISE ORGANIZATIONAL CHANGES

Alabama

Independent Lock Co., Fitchburg, Mass., selected a site in Selma, Ala., for a $1 million branch plant.

California

R-S Products Corp., Philadelphia, was awarded the contract to design and construct a continuous cast iron pipe annealing furnace for the new western plant of **U. S. Pipe & Foundry Co.**, East Burlington, N. J., to be located in the San Francisco bay area. Foundry will make centrifugally cast pressure pipe for the rapidly expanding Pacific Coast trade. Similar furnaces have been completed recently by R-S Products Corp. for Canada Iron Foundries, Three Rivers, Que., and for Lone Star Steel Co., Lone Star, Tex.

California

Earle M. Jorgenson Co., steel distributor, installed a National Machine Co. upset forging press in its Los Angeles plant. Capacity is 7½ inches stock thickness.

Connecticut

Hartford-Empire Co., Hartford, Conn., purchased the Atwood plant of Universal Winding Co., Cranston, R. I., at Stonington, Conn., and will expand machine production at the former foundry shop.

Connecticut

Taylor & Fenn Co., Hartford, Conn., will construct a foundry building to cost about $425,000.

Connecticut

Dow Chemical Co. has started construction on a plant near New London, Conn., for the manufacture of Styron, a Dow plastic. Site of the plant is located on the Thames river and Dow plans to ship some raw materials directly from its Texas Division via water route. The site is strategically located in the heart of eastern plastics industry.

Delaware

Navy Department will spend more than $250,000 to rehabilitate the U. S. Naval Industrial Reserve Shipyard in Wilmington, Del., to place it in readiness in case of an emergency. It was formerly the Dravo Shipyard.

Delaware

Wandel Machine Co. Inc.—machines—has filed a charter of incorporation with the secretary of state's office, Dover, Del. Capital of the firm is listed at $75,000. United States Corporation Co., Dover, is serving as the principal office.

Idaho

Negotiations are under way with **American Cyanamid Co.**, New York, for operation of the chemical processing plant under construction at Atomic Energy Commission reactor testing station in southeastern Idaho. Nuclear fuel from used reactor fuel elements will be recovered. The plant was designed by Oak Ridge National Laboratory, Oak Ridge, Tenn., and Foster - Wheeler Corp., New York, and is being erected by Betchel Corp., San Francisco.

Illinois

Independent Pneumatic Tool Co., Aurora, Ill., organized two export corporations to operate as sales and service branches in western Europe and South America. These new firms are: Thor Tool Continental Inc., Antwerp, Belgium, operating under the direction of Vance G. Turner; Thor Tool Hemisphere Inc., Sao Paulo, Brazil, operating under the managership of Donald E. Randall.

Massachusetts

Lapointe Machine Co., Hudson, Mass., manufacturer of broaches and broaching machinery, is adding 25,000 square feet to its production space at Hudson.

Michigan

Lapeer Mfg. Co., producer of toggle-action clamps, moved its sales offices to 1144 W. Baltimore, Detroit. Manufacturing operations continue at its plant in Lapeer, Mich.

Missouri

Springfield Electric Service Co., Springfield, Mo., is named a certified service shop for **Allis-Chalmers Mfg. Co.** (Milwaukee) motors, controls and transformers in 20 southern and western Missouri counties and in five counties in northern Arkansas. O. W. Waller is president of the Springfield firm.

New Jersey

Hobsite Products Co. Inc., manufacturer of vibration isolation sheet material, moved its principal offices to 308 Sussex St., Harrison, N. J., from Paterson, N. J.

New York

McPhilben Mfg. Co. Inc., manufacturer of specially designed lighting units for public buildings, schools, and specification type projects, moved to 1329 Willoughby Ave., Brooklyn, N. Y. The new location provides larger facilities for design and production activities.

New York

Turner Industries Inc. has been organized in Endwell, N. Y., for the manufacture of machine parts. Murray I. Dann, a company official, says the company plans to employ about 30 workers.

New York

Simmons Machine Tool Corp., Albany, N. Y., was named exclusive overseas distributor for all Kling metalworking machinery by Kling Bros. Engineering Works, Chicago. Export offices of the Simmons firm are located at 50 E. 42nd St., New York 17. Boris Volynsky is the export manager.

Ohio

Die Supply Co., manufacturer of special die sets, moved into its new $200,000 plant at 1400 Brookpark Rd., Cleveland. J. R. Fitzsimmons is chairman of the board.

Ohio

E. W. Bliss Co., Canton, O., is increasing production facilities at the local plant which it leased from the Navy last June. The company is putting in new foundations, installing machine tools, relocating some and otherwise changing the layout to increase production of mechanical and hydraulic sheet forming presses.

Ohio

Ohio Equipment Co. is now located at 1220 W. Ninth St., Cleveland. The firm will continue to represent mate-

"Perfect perforating"

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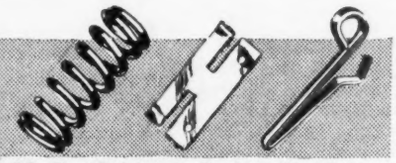

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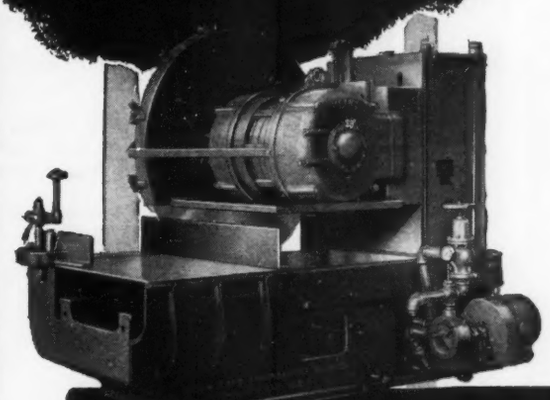
Modern Sawing



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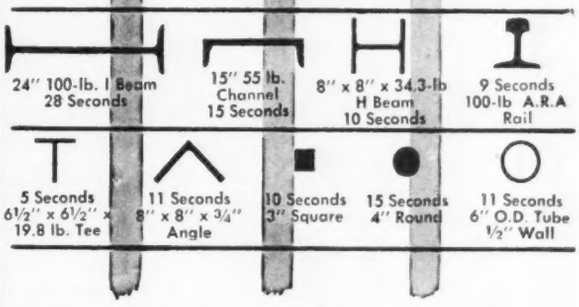

Friction sawing is one of few mechanical processes which employ the heat of friction in a useful manner. It concentrates heat on the material to be severed at a rate which is faster than it can absorb heat. The immediate temperature rise of the contact surface is so great that its strength is reduced considerably lower than that of the colder blade rim. This heated surface is readily removed by the blade and permits complete severing of the material rapidly with no loss of metal from the blade.

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rials handling equipment manufacturers, including Economy Engineering Co., Chicago.

Ohio

Erie Mfg. Co., subsidiary of Z-W Machine Products Inc., Cleveland, purchased an industrial building at 5112 St. Clair Ave. to be used for expanded production of sprayers, automotive parts, blow torches and other products now being manufactured at 5151 St. Clair Ave.

Ohio

Kurt Orban Co. Inc., importer and exporter, moved its Cleveland office to 642 Union Commerce Bldg.

Ohio

Cleveland Tramrail Division, Cleveland Crane & Engineering Co., Willoughby, O., appointed as representatives: Cleveland Tramrail Division of Material Handling Equipment Co., New York; Cleveland Tramrail Division of John W. and W. H. Carlson, Atlanta; Cleveland Tramrail California Co., Los Angeles. The San Francisco office of Cleveland Tramrail California Co. moved to 503 Market St., San Francisco 5.

Ohio

Bradley Metal Co. was incorporated in Cleveland to manufacture metal products. Joseph H. Persky is statutory agent.

Ohio

Winter Stamping Co., which opened a new factory in Napoleon, O., has its headquarters in that city. This firm has no affiliation with the company of the same name located in Goshen, Ind., as erroneously reported in the Oct. 23 issue of STEEL.

Ohio

Peerless Steel Chain Corp. was incorporated in Cincinnati to manufacture and distribute steel chain and other metal products. Incorporators are Harry S. Schwartz, corporate agent, Ruben E. Cohen and Joseph K. Schwartz.

Ohio

Cincinnati Gas & Electric Co., Cincinnati, plans to enlarge its unfinished Clermont power station near New Richmond, O., with an additional 100,000-kw generating unit at a cost of $16 million.

Oregon

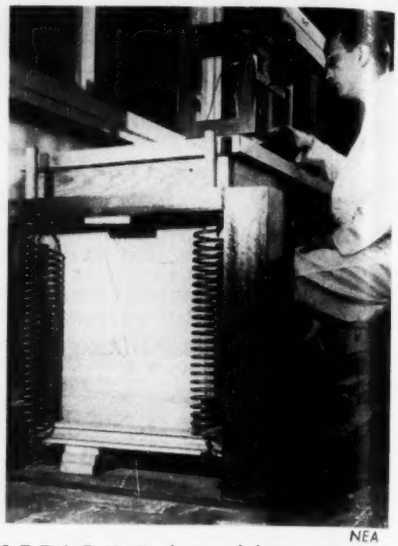
Hyster Co., Portland, Oreg., appointed French Mill Supply Corp., Utica, N. Y., to sell and service Hyster industrial trucks in 16 counties of central New York. Speer & Co., Cincinnati has taken over sales and service of Hyster industrial handling equipment in southwestern Ohio, eastern Indiana and northern Kentucky. Richmond Auto Parts, Hyster dealer in Richmond, Va., opened a branch sales office under the name of Virginia Bearings & Supply Co. at 354 Salem Ave., Roanoke, Va.

Pennsylvania

SKF Industries Inc., Philadelphia, is operating a new air-conditioned unit for the processing of antifriction bearings to meet increased demands of the nation's expanding aircraft program. The new unit is part of a program permitting greater control in the manufacture of aircraft and other precision bearings, principally those for machine tools.

Pennsylvania

Insul-Mastic Corp., Pittsburgh, appointed the following licensees to contract for the application of the protective coatings which the company manufactures: Insulation Engineers Inc., Mobile, Ala.; Industrial Roofing & Sheet Metal Co., Cleveland; R. F. Zimmerman & Co., Shreveport, La.



NEA

S-T-E-A-D-Y: To keep delicate analytical scales operating near giant drop forging machinery Westinghouse design engineers mounted this work table on springs and foam rubber. Four tension springs and ten rubber pads absorb all vibrations before they reach the table. So the spring suspension system would operate properly when heavy materials are placed on the table top, steel plates were bolted to the bottom. Here, Dr. E. P. Stefl carefully weighs out materials for a test in the firm's materials engineering department

South Carolina

Textron Southern Inc., controlled by Textron Inc., New York, will construct a $1 million addition to its Williamston, S. C., print cloth mill.

Tennessee

E. I. du Pont de Nemours & Co. Inc., Wilmington, Del., plans to build a $7.5 million plant in Memphis, Tenn., for the manufacture of sodium cyanide. Plant construction will be under the direction of Du Pont's own engineering department.

West Virginia

Cory Corp., Chicago, purchased the **Nicro Steel Products Co.,** Parkersburg, W. Va. The latter company was the originator of home stainless steel coffee making equipment. Nicro will continue operations as a division of Cory.

Wisconsin

John A. Evans purchased the business and equipment of **Kenworth Metal Stamping Co.,** Milwaukee. The firm is equipped for large volume metal stamping production work and specializes in short run stamping from low-cost temporary dies.

Wisconsin

Frank Werth and Alfred Lemberg resigned as vice presidents of **Advance Tool & Die Casting Co.,** Milwaukee, to operate their own business. They purchased the **Square Deal Machine Co.,** that city, and plan to produce molds for the plastic industry and die casting dies.